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An index to the seventy-eighth volume of THE RAILWAY GAZETTE, *covering the issues from January 1 to June 25, 1943, has been prepared, and is now available free of charge on application to the Publisher*

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

REDUCTION IN SIZE OF PAGE

To economise in paper our readers will observe a slight reduction in the size of THE RAILWAY GAZETTE *in that the size of the page has been reduced from 9 in. × 12 in. to 8½ in. × 11½ in. The type area of the page remains the same, namely, 7 in. × 10 in., but the surrounding margins have been reduced. This of course detracts from the appearance of the paper, but is one of the exigencies of the war*

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 a.m. till 5.30 p.m.
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

Impending Half Yearly Dividends

NEXT week the boards of two of the main-line railway companies are expected to make known their dividend declarations in respect of the first six months of the year. The statement of the directors for the Southern Railway is likely to be made on July 22, and the board of the G.W.R. will make known its decision on the next day. In respect of the L.M.S.R. and L.N.E.R., the market is expecting their announcements to be forthcoming on July 29. There has been ample evidence that railway operations during the first six months of this year were on an extremely high level and well in excess of those for the first half of 1942. Nevertheless, because of the arrangements under the financial agreement with the Government, it is unlikely that there will be any change in interim dividends as compared with a year ago. At that time, Great Western ordinary stockholders received 2 per cent.; the L.N.E.R. 4 per cent. non-cumulative second preference stockholders got 1 per cent.; and Southern preferred ordinary stockholders 2½ per cent. The L.M.S.R. paid at the full rate on its 4 per cent. preference stocks.

N.U.R. Conference

The annual conference of the National Union of Railwaymen at Carlisle made its usual demand for the nationalisation of all forms of transport. Mr. J. Benstead, urging State ownership and control, said that the transport system of this country, by rail, road, sea, and air, should be the efficient handmaiden of industry, giving an economic service and infusing into our economic life the energy to secure the maximum internal and external trade. Just why it should be thought that a State-controlled transport service should have these merits is not at all clear, or why benefits of this kind should be expected to flow from bureaucratic administration, but perhaps Mr. Benstead gave a clue to his ideas on the subject of nationalisation when he added that: "Government control should not be lifted from the railways until we have a clear determination of what is going to happen to the British railwaymen." That, of course, is equally vague, but it implies a political approach to the problem. Possibly Mr. Benstead is more concerned with the fortunes of members of his union than with the service provided to the economic life of the country. Whether, indeed, Mr. Benstead is on good ground in that matter seems open to doubt, for it is at least unlikely that the unions in peacetime would fare any better in negotiating with Treasury representatives than with spokesmen of the railway companies.

L.M.S.R. Travel Regulation

Shortly after the ban on pleasure visits to Southend had been lifted by the Government it became apparent to the L.M.S.R. that holiday passenger traffic from Fenchurch Street and intermediate stations rapidly was approaching peacetime intensity, and evidence was obtained by the company that war workers were being crowded out. It became necessary, therefore, to devise a means of limiting ordinary bookings so that season- and workmen's-ticket holders might be sure of securing accommodation. A census was taken during May last of the number of passengers travelling from the London terminus to Southend, and *vice versa*, and to and from intermediate points, on each train; and the variations between days of the week were noted. As the result, the company has introduced experimentally the limitation of ordinary bookings to a certain number (based on the May census) for each train, varying if necessary as between days of the week. Among those booking ordinary tickets, Service personnel receive priority. The introduction of the system has been described in some sections of the press as "travel rationing"; this, of course, is incorrect. "Rationing" should mean that at least a small portion of any commodity or facility is available to all comers; whereas the system of regulation instituted by the L.M.S.R., in accordance with a practice which it has adopted elsewhere on various occasions, merely seeks to guarantee that the essential traveller shall not be crowded out by the pleasure seeker.

Nitrate Railways' Expropriation

So long ago as August 28, 1941, a decree was passed by the Chilean Government for the expropriation, under payment of an indemnity, of the undertaking in Chile of the Nitrate Railways Co. Ltd. At the ordinary general meeting of the company held on June 28, the Chairman (Mr. Patrick L. Fleming) when reviewing the results for the year 1942, said that during that period the question of expropriation was constantly under consideration by the Chilean Government, but he was not yet in a position to give the stockholders any idea when, or on what terms the expropriation would eventually take place. The undertaking, therefore, still remains in the possession of the company, but

it is difficult to forecast its future. It was provided in the decree that a commission was to make a valuation which was to be submitted to Congress in the form of a Bill. The Iquique—Noria section reverted to the Government in 1936, but has continued to be worked by the company. The remaining sections to be appropriated are:—San Pablo—Lagunas, about 91 miles; the line connecting La Noria and Negreiros, with branches on the Pampa, 143 miles; and the line from Pisgua to Negreiros, 90 miles. The net surplus on railway operation in 1942 was £7,393, against a deficit in 1941 of £15,523.

The Railways of Madagascar

The first railway completed in Madagascar, after the island came under French rule in 1895, was that opened in March, 1913, from the port of Tamatave on the east coast to Tananarive, the capital, a distance of 369 km. (229 miles). This line was extended on October 15, 1923, from Tananarive southwards to Antsirabe, a distance of 154 km. (96 miles). A branch of 168 km. (104 miles) was opened in October, 1917, from Moramanga on the main Tamatave—Tananarive line northwards to Lac Alaotra, and an isolated line of 163 km. (101 miles) was opened in April, 1936, from Manakara on the south-east coast to Fianarantsoa, from which there is road communication northwards to Antsirabe, and southwards to Fort Dauphin. These railways are State-owned and of metre gauge, and embody notable engineering features. A short description of them was published on page 579 of *The Railway Gazette* for May 15, 1942, and was followed by a map on page 499 of our issue of November 20, 1942. An interesting account of a railway journey made in the early part of 1939 on the Tamatave—Tananarive line is given by Mrs. O. M. Chapman in her recently-published book "Across Madagascar." Ordinarily the journey is a long one, as the train leaves Tamatave at 5 a.m. and does not reach Tananarive until 8 p.m. On two days in the week, however, one could travel faster and more comfortably, as Mrs. Chapman was able to do, by leaving at 7 a.m. in a Michelin railcar, which completed the journey in nine hours. Heavy luggage followed next day in the ordinary train, as passengers on the Michelin were allowed only one small suitcase each. Later, Mrs. Chapman made the 4½-hour train journey from Tananarive to Antsirabe.

Anglo-Scottish Passenger Traffic

Reinstatement by the L.N.E.R. from June 28, 1943, of the midday services between Kings Cross and Edinburgh, which were withdrawn on December 8, 1941, is a reminder of the unprecedented growth that has taken place in Anglo-Scottish passenger traffic since the outbreak of war. On the L.M.S.R. Western Division, for example, the present version of the Night Scot requires to be run in four sections nightly between Euston and Glasgow; whereas the same traffic in peacetime, except in the height of the summer season, was catered for by three night trains only; similarly on the L.N.E.R. the 10 a.m. Flying Scotsman needs two sections daily between Kings Cross and Edinburgh, with a relief at 9.15 a.m. for Newcastle. It has to be remembered, also, that as compared with the spacious comfort of peacetime, most of these trains carry from 25 to 33 per cent. more stock, with no restaurant accommodation and with every seat occupied; and this probably means more than double the number of passengers in each train, as compared with peacetime standards. Indeed, the three sections of the L.N.E.R. 10 a.m. down may frequently take out of London from 55 to 60 coaches loading to 3,000 passengers and more, the great majority of them, of course, members of the Services. The L.M.S.R. has at no time withdrawn its 1 p.m. train from Euston to Glasgow, or the corresponding up service, and the former in particular is always a heavily patronised train. Restoration of the midday L.N.E.R. trains had become almost inevitable, by reason of the excessive pressure on the accommodation of the 10 a.m. services, and these restored facilities will be warmly welcomed.

Post-War Machine Tool Problems

Mr. J. R. Greenwood, Chairman & Managing Director of Craven Bros. (Manchester) Limited, is not unduly concerned on the disposal of surplus machine tools after the war. In his view, if there is a surplus in this country it is certain that there will be a serious dearth in many countries in devastated Europe, in China, Russia, Turkey, and in the Empire. When peace comes, every country will wish to participate in the reconstruction of the world, and the further development of industry, and machine tools will be required in large quantities. To meet post-war problems Mr. Greenwood advocates (*a*) a policy of selective scrapping of obsolete and worn-out machinery; (*b*) a policy to control the disposal of machinery which is Government property, only as fast as it can be absorbed into industry; (*c*) a realisation of the necessity of exporting large quantities of surplus machinery for reconstruction schemes, and road and railway construction, and transport maintenance in other countries; and (*d*) a realisation of similar possibilities of export of surplus machinery to the devastated countries of the Continent.

Safeguard Required

Mr. Greenwood, who makes these points in a contribution to *The Financial News*, considers that the Government should not export a used machine tool unless, or until, it has been overhauled and reconditioned; this is a security against disagreement, misunderstanding, and complaints between the buyer and the seller, and he also considers that the original manufacturer should be given the option to acquire surplus machinery and to dispose of this, after reconditioning, either to the Government, or direct to other customers at home or abroad. There is still a large number of engineers and other manufacturers in this country working with machinery and plant which is obsolete or worn out. No doubt these manufacturers will have an opportunity of obtaining up-to-date plant from the surplus available when the war is over, but it is hoped that they will not be able to get their requirements at ridiculously low prices, which is what may happen if the Government policy should be to sell everything by public auction in the shortest possible time, and at any price, and mostly to speculators.

The Measurement of Gradients

Widespread movements of engineering troops in wartime cause railwaymen to familiarise themselves with the differences in practice and terminology in many countries, and one of the points about which we have received inquiries is the measurement of gradients. In many parts of the world it is the practice to express gradients as percentages, whereas in this country the custom is to indicate them in the form of a ratio, thus 1 in 210. In each case, the percentage or the ratio represents the relationship between the vertical line and the distance along the base of the triangle, and not along the hypotenuse. That is to say, 1 in 100 represents 1 ft. rise in 100 ft. of horizontal distance, and not of distance along the actual railway line, which is the hypotenuse of the triangle. The difference between the two methods of measurement is infinitesimal until such steepness of inclination as that of rack-and-pinion and funicular railways is reached. If the angle of inclination reaches 45 deg. the gradient is correctly described as 1 in 1. To our knowledge the nearest approach to this figure is on the funicular railway adjoining the pipeline which serves the Ritom power station (in Canton Ticino, Switzerland) of the Gotthard Railway; this line was originally constructed to carry up from Piotta to Piora the materials for the associated works at Lake Ritom, and rises 2,145 ft. in ⅞ mile, with a maximum inclination of 87·8 per cent., or roughly 1 in 1⅛. A funicular serving the Dixence barrage (in connection with Chandoline power station at Sion, in the Rhone Valley) has a record inclination of 108 per cent., but this is not available to ordinary passengers.

Enginemen's Pay on a Horsepower Basis

An emergency board in the United States has recently been hearing a claim by diesel enginemen for revision in the method of calculating pay. Hitherto the basis has been the adhesion weight of locomotives, but the present claim of the unions is to change this to horsepower; the railway representatives in reply contend that this is but a thinly-veiled demand for considerable increases in pay, ranging from 8·4 to 33·8 per cent. on passenger diesels of from single to triple-unit types, and from 11·2 to 44·7 on freight diesels up to the 6,000 b.h.p. quadruple-unit types. Some of the evidence given threw a remarkable light on the pay of American locomotivemen. On the electrically-operated Pennsylvania service between New York and Washington, for example, a driver earns 4½ days' pay for a single round trip, and needs to make only ten round trips a month to earn 46 days' pay. At 75 m.p.h. the men are earning three-quarters of a day's pay every hour. The 16-hr. run of a diesel-electric streamliner like the Denver Zephyr over the 1,040 miles between Chicago and Denver requires eight engine-crews; $88.37 is the amount paid to the drivers, and $70.99 to the firemen, or $4.47 and $3.59 respectively for every hour on duty. If the full wage demands were granted, it would be possible for a driver to earn up to $14.13 for every 100 miles during which he manned one of the quadruple-unit 6,000 h.p. diesel-electric freight locomotives.

"White Collar" Permanent Way Men

A remarkable experiment is being tried by one of the railways serving the Pacific Coast of the United States, to meet the shortage of the labour required for track maintenance. It is the part-time employment of so-called "white collar" workers on Saturdays and Sundays; and so successful is the plan that 1,000 extra workers are being employed regularly at week-ends at various points along the line. Whether the main urge is patriot-

ism, or the desire of a lifetime to work on the railway, or the time-and-a-half rate paid for Sunday work, or a judicious combination of all three, is immaterial; the fact remains that the same men are coming back week after week, and their numbers include students at schools and colleges, teachers, professors, business men, and even professional men. What is more, they are making good. The recent comment of one assistant road-master on their work was, "What gets me is the way these fellows pitch into it. I never saw such spirit. They may be a little 'green' on the fine points of pulling spikes or slipping tie-plates under a rail, but they certainly are there with willingness." Similar help has been employed repeatedly by other railways in relieving congestion in the handling of less-than-carload traffic in freight depots and transit sheds, and has proved equally effective. It will be a remarkable outcome of this experiment if ultimately the amateur American railway workers are able to give points to professional labour on how its work should be carried out. (*See also page* 73.)

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A C.T.C. Development

In recent years the use of the C.T.C. system of coded control for the operation of signals and points has been extended greatly in the U.S.A. Originally designed for use on long stretches of single line, to bring the movements of all trains under the direct control of the Train Despatcher for the particular subdivision, the C.T.C. principle has been applied in other directions, for example, to obtain the utmost flexibility in working, from one control point, groups of interlockings on two-, and four-track main lines; and in providing for reversible road working in districts where, for example, the direction of the heaviest traffic is eastbound in the morning and westbound in the early evening. In studying these developments the fact that there is a limit to the capacity of the system is apt to be overlooked; and there comes a time when a choice has to be made between installing extra line wires, and limiting the area to be brought under the control of one C.T.C. machine. The development of the "Union" coded carrier control system is of special interest on this account; indeed, the prospect opened out covers a far wider field even than that shown in the notable installation on the Southern Pacific described elsewhere in this issue. Where an existing telephone circuit is available there is now no need to instal any new lines to carry the control currents of a C.T.C. plant; for, by the use of suitable filters, ordinary d.c. coded controls, and coded carrier controls can by this new system be superimposed upon the existing telephone line.

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Indian Rolling Stock Livery

The reference in our issue of June 4 to various experiments with the livery of Indian locomotives resulted in a request to us from one of our British railway readers for current information about the painting of passenger rolling stock. The various systems of the Indian State Railways, such as the East Indian Railway, the North-Western Railway, the Great Indian Peninsula Railway, and the Bengal & Assam Railway, use a crimson lake livery generally similar to that of the L.M.S.R., but of a slightly different shade, with perhaps rather more of a brick hue. The Burma Railways and the Bengal-Nagpur Railway have much the same livery, which is very widespread throughout India, as our recollection is that the Madras & Southern Mahratta Railway and the Bengal & North-Western Railway also use a variety of crimson lake. An exception is provided by the Bombay, Baroda & Central India Railway which has a kind of umber lower panelling and cream upper panels.

■■■■

Sail Power on Rail

Among the many unusual features of railway operation, to which war conditions have given a fillip, is the use of sail power. The wind probably provided the earliest railway motive power, apart from animals, for Waller recorded of Sir Humphry Mackworth in 1698: "I believe he is the first gentleman in this part of the world that hath set up sailing engines on land, driven by the wind, not for any curiosity, but for real profit." This was on a mineral railway at Neath. In peacetime, wind-power on rail is still used on private railways near the coast, and wartime fuel difficulties have resulted in a considerable expansion of the practice in many parts of the world, as instanced in the news article we published at page 47 last week. On the Russian front, the Germans have used sailing trolleys to conserve fuel, because they are silent, and because they are not vulnerable to air attack and if destroyed are more easily replaceable than valuable locomotives and rolling stock. Coastal railways in India and Chile, to cite but two examples, make use of the regular daily land and sea breezes to propel "business journeys" out and home, and thus save valuable and diminishing fuel stocks.

Bad Credentials

AT a London Labour Party meeting on June 27, Mr. Herbert Morrison returned to his favourite theme of post-war economic transformations. He declared that the basic question was: Who will control industry? The State, in his view, had to make itself responsible for seeing that our productive resources are used to the upmost. That would mean more public ownership or control of industry than we have ever had in peacetime. He was not sure how much private control that would leave, but whatever private control was allowed to continue in the name of private enterprise had got to be really enterprising, and the Government had got to see that it was. Mr. Morrison does not seem to find utterances of this kind as strange or as rich in humour as may some who do not blind themselves to the fact that the very circumstances in which the Government control of industry has become necessary at the present time, have arisen in large part from the policies, or perhaps lack of a strong constructive policy, pursued by governments in the past.

There can be relatively few outstanding industrialists, especially those with continental connections, who were not aware of the trend of events in Germany, and, at this stage, the Government can hardly claim that it had not received full and frequent warnings from its diplomatic representatives and other well-informed sources, as to the menace which was developing in Germany, at least during the past ten years. Its notable failure to prepare against a conflict, which so many held to be inevitable, does not encourage the belief that Cabinet Ministers and Government servants, who have not been successful in the conduct of affairs with which they were entrusted, are therefore qualified to run trade and industry better than those whose record, in their own sphere, is not unfavourable by comparison. The record of most of the new ministries started on account of the war has not inspired confidence. It is perhaps a pity that Mr. Morrison does not follow the excellent example set by the Prime Minister, who, in the House of Commons on July 1 was asked by Mr. W. Craven-Ellis whether the Government had yet taken any decision as to who would control industry after the war, and what major industries were scheduled for State enterprise and free enterprise, respectively? The Prime Minister's rejoinder was that he would not dream of embarking on such political and party controversies at the present time, and when Mr. Craven-Ellis pointed out that one of Mr. Churchill's colleagues had ventured into this area of controversy, and that it was causing a great deal of dissatisfaction, he said, "all the more desirable it is that I should not swell the chorus."

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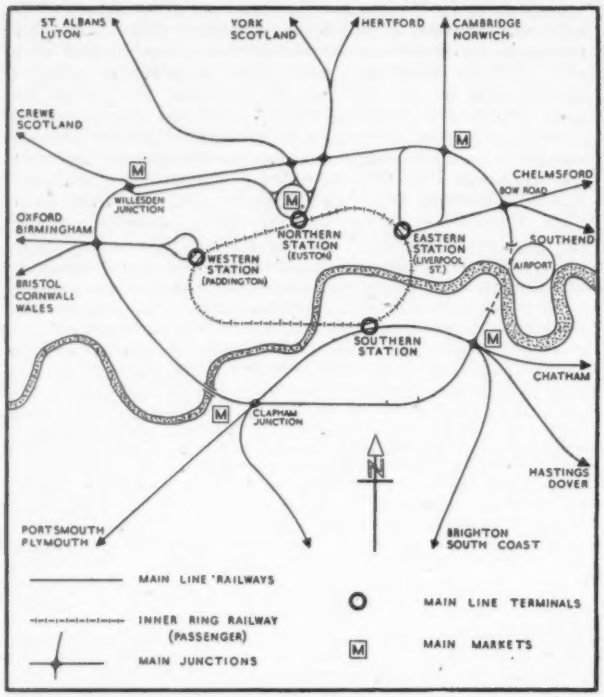
London Stations in the Air

THE London Regional Reconstruction Committee of the Royal Institute of British Architects has produced a second interim report, which is issued in pamphlet form entitled "Greater London: Towards a Master Plan." The transport section of the report deals once more with the proposal, which has been made often enough in the past, for combining the functions of a number of the main-line railway stations. The committee is of the opinion that the terminal stations of London could be reorganised and reduced in number, and the regional plan, which we reproduce, shows a western terminus (Paddington), which would serve western and south-western England, Wales, and Ireland; a northern terminus (which would combine Euston, St. Pancras, and Kings Cross), and which would serve the Midlands, north-western and north-eastern England, Scotland, and Ireland; an eastern terminus (Liverpool Street) would serve eastern England and the east coast ports; and a southern terminus (which would combine among others Waterloo, Victoria, Charing Cross, Cannon Street, and London Bridge) would serve south-eastern, southern, and south-western England, and the Channel ports. Inter-communication between the main stations is shown in the diagram, and in addition a circular main railway is projected, which would use existing tracks with the exception of a new link line on the east side of London. The purpose of this railway primarily would be to facilitate the distribution of bulk freight and it is, therefore, linked with the dock area, and with the secondary distribution tracks throughout its route; it would be used also for through-passenger traffic.

For the areas lying between circles drawn from 12 to 15 miles and 30 miles respectively from the centre of London, the committee proposes "broad principles of organisation." Among those principles are: (1) all outer-suburban trains would stop at all stations within the belt limited by the 12-15 miles and 30 miles radii; (2) there would be no stops at intermediate stations as far as 3 to 4 miles from the centre; (3) the tracks would then continue across the central area of London, with

stops at all intermediate stations on the route; these sections would be below ground similar to, and including, sections of the existing Inner Circle and District Railways. It is also proposed that all outer-suburban services should be electrified, where this



London Regional Reconstruction Committee plan of London main-line termini

has not been done. Inner-suburban services suggested by the committee would operate for the whole of the area within the 12 to 15 miles radius from the centre, and all the railways under this heading would consist of existing or new electric tubes, linked up with existing or additional surface railways and would include the Metropolitan and District Railways. The report makes no estimates of the cost of these proposals, nor does it deal in any detail with the advantages to be derived from them, or even with the practical aspects of their accomplishment.

Another body of planners which incorporates in its projects a reorganisation of railways in the London area is the London County Council. Mr. J. H. Forshaw, Architect to the L.C.C., in association with Professor Patrick Abercrombie, has prepared a provisional plan, which is a very ambitious work, and is published in the form of a book;* it makes a number of valuable contributions to the investigation of some of London's problems. The L.C.C. plan also envisages the fusion of certain of the main-line termini in London, and the widespread electrification of lines leading into the capital. On the other hand, it is suggested that the railways present a number of difficult features which, from the planners' point of view, merit serious attention and detailed consideration, and the authors of the plan suggest that a specially-appointed investigating body should be set up before any detailed scheme for dealing with railways is propounded. That, at least, is a realistic approach to what is an admitted problem. At the same time it cannot be overlooked that the L.C.C. plan devotes one chapter—Number 13—of but two pages to legal and financial aspects of a scheme which, in all, comprises a book of 188 pages. Moreover, no figure of cost is mentioned, and for these reasons alone it would seem that the plan is indeed provisional.

The L.C.C. is not committed to the adoption of the plan and its next step is to submit the scheme to the various interested parties. These include government departments, the City Corporation, and the metropolitan borough councils, the railway companies, London Passenger Transport Board, the Port of London Authority, and so forth. In the meantime an exhibition is being held at County Hall of the various plans and projects involved in the scheme which, it is admitted by its sponsors, would take half a century at least to put into full effect. Its primary virtue at the moment seems to be to show a line along which progress may be made.

* "County of London Plan, 1943," Macmillan & Co. Ltd. 12s. 6d. net. See "Publications Received," p. 58.

Indian Railways in 1941-42

THE annual report published by the Government of India Railway Department for the year ended March 31, 1942, opens as usual with notes on the weather and crops, upon which traffics normally depend so greatly. Both the South West (Summer) and North East (Winter) monsoons were unevenly distributed as to intensity of rainfall and period, but taken all in all, the season from the agricultural point of view was fair and the crops not seriously in deficit except jute. A reduction by 62 per cent. of the acreage under jute enabled 15 per cent. more rice to be produced, an important matter in view of the loss of all Burma rice to India. Financially, results may be summarised as follow. Thanks to the continued stimulus of war conditions, earnings reached a new high level; traffic receipts on State-owned railways amounted to Rs. 129·18 crores (£96,885,000), an increase of Rs. 17·24 crores (£12,930,000) over the preceding year's total. After meeting all charges, including depreciation and interest on capital, the year's working resulted in a net gain of Rs. 28·08 crores (£21,060,000), of which surplus Rs. 20·17 crores were credited to Central Government Revenues (Rs. 4·80 crores as the year's contribution and Rs. 15·37 crores towards arrears due from previous years), and the Rs. 7·91-crore balance was placed to the credit of the Depreciation Reserve Fund in part payment of the loan previously taken. A comparison of the principal results for 1940-41 and 1941-42 is shown in the table below :—

Items	1940-41	1941-42	Percentage difference
Passengers carried (millions) ...	575·7	623·1	+ 8·23
Passenger-miles (millions) ...	19,929	22,019	+ 10·49
Passenger earnings (crores) ...	Rs. 34·14	Rs. 39·69	+ 16·26
Average fare per passenger-mile ...	Pies 3·29	Pies 3·45*	+ 5·17
Average passenger journey ...	Miles 34·6	Miles 35·3	+ 2·02
Freight tons carried (millions) ...	92·8	97·0	+ 4·53
Net ton-miles (millions) ...	25,289	28,046	+ 10·90
Freight earnings (crores) ...	Rs. 81·48	Rs. 89·63	+ 10·00
Average rate per ton-mile ...	Pies 6·19	Pies 6·14†	− 0·81
Average miles a ton was carried ...	Miles 272·6	Miles 289·1	+ 6·05

* = 0·323d. per mile † = 0·576d. per ton-mile

A point which may strike home readers is the average lead a ton of freight was carried, over 289 miles.

One of the outstanding transactions during the year was the termination of the Bombay, Baroda & Central India and Assam-Bengal Railway Companies' contracts, and the taking over of the working of these two important systems by the State on January 1, 1942. The former continued to be worked as a separate entity, but the latter was merged in the Eastern Bengal (State) Railway to form the Bengal & Assam Railway. Another small line was also purchased outright from a company by the Government, namely, the 156-mile broad-gauge Tapti Valley Railway, on March 31, 1942. Notice of intending purchase by Government of three metre-gauge companies' railways, the Bengal & North Western, Rohilkund & Kumaon, and Mirpurkhas-Khadro lines, was also given during the year, to take effect on December 31, 1942. Collectively, they entail the passing over to State management of 2,697 route-miles of line, though 1,179 of these miles were previously Government-owned but worked by companies.

During the year under review, the strain on Indian railways resulting from the war increased greatly. Military traffic reached unprecedented levels, supplies similarly increased, and industries throughout the sub-continent expanded steadily. The customary slack period during the summer months completely disappeared in 1941, with the result that the railways were unable to overtake arrears of traffic accumulated during the previous busy season, and opportunities for large-scale routine repairs of rolling stock vanished. The position became more acute because of the serious contraction of other means of transport, such as coastwise shipping and road haulage, reduced to meet the limits imposed in the use of petrol. The evacuation of coastal towns and the influx of refugees from Burma and Malaya further increased transport difficulties. So, though the flow of essential traffic was maintained, the railways were unable to meet in full all the demands on them. The distribution of coal had to be controlled, and a special officer was appointed for this duty. Later, a priority system for the control of all rail transport had to be introduced. Meanwhile, the railways experienced increased difficulties in obtaining their own supplies of materials, and they were strictly rationed in the quantities of such commodities as steel.

The efforts of the railways were concentrated during the earlier part of the fiscal year mainly on assisting the transport needs of the Forces guarding the western approaches to India in Iraq and Iran, but latterly the approach of the Japanese to the eastern frontier caused very considerable changes in the normal flow of traffic

throughout the country, and diverted a heavy volume to the North East Frontier. These changes further reduced the capacity of railways to meet demands in full. In the meantime, however, munitions production in railway workshops steadily increased, and at the end of the year over 16,000 railway employees were engaged solely on this work. Some 230 officers had been released for service in the Forces or the Supply Department, and many subordinates had been allowed to accept emergency commissions in Railway Transportation Units. Railways also undertook to recruit and train a large number of men for Railway Military Units for service overseas, and had to find from their own ranks officers and staffs to do this important work. Permanent way and rolling stock continued to be supplied to the Defence Department for use both overseas and in India, and additional branch lines were dismantled for this purpose. With the approach of hostilities to Indian soil a large-scale Air-raid Precautions organisation was built up on railways, and was controlled by a special staff under the Railway Board.

Turning to transport and other details, it is noticeable that during the year, although there was an increase in passenger-miles of 10·8 per cent., the passenger train-mileage was actually reduced by 1·68 per cent. as compared with 1940–41. Similarly the goods train-mileage did not increase in nearly the same proportion as the net ton-mileage; considerably increased train loads were hauled to achieve these results. As a sound basis for measuring operating efficiency, wagon usage in terms of wagon-miles per wagon-day and net ton-miles per wagon-day may be quoted as under :—

	5 ft. 6 in. gauge		Metre gauge	
	1940-41	1941-42	1940-41	1941-42
Wagon-miles per wagon-day	42·9	47·0	33·1	35·9
Net ton-miles per wagon-day	392	441	163	182

Such increases of from 7 to 13 per cent. in the course of a year are remarkable. Special measures were taken to obtain better wagon loading, especially in respect of "smalls." Intensive propaganda was undertaken to drive home to the loading public the necessity for insuring maximum wagon usage. On the other hand, passenger travel was deliberately discouraged by the withdrawal of cheap fares, and cheap parcel rates were also cancelled. Restriction of the carriage of non-essential commodities and diversion of traffic to the shortest possible route together with the quotation of special rates to prevent rebooking were introduced to reduce haulage. Competitive rail rates and fares were withdrawn wherever traffic could be diverted to river steamer routes or rail-and-steamer routes, and even railway coal was diverted to co-ordinated rail-river services. To reduce still further non-essential rail traffic, the Government arranged for the reduction or suspension of fairs and *melas*, and prohibited the carriage of pilgrims by rail to the great Kumbh Mela held once in 12 years near Allahabad, because of the railways' commitments to essential traffic.

Only 8 new locomotives, 244 coaches, and 130 wagons were placed in service on broad-gauge lines during the year, and no new locomotives, 78 coaches, and 93 wagons on the metre-gauge. Locomotive building at Ajmer shops was held up for lack of materials, and only a small tonnage of rails and fishplates was available from the Tata Iron & Steel Co. Ltd. Among the more important designs and publications issued by the Central Standards Office were for the Callender-Hamilton type of emergency bridging material, modifications to existing bogie wagons for the transport of armoured vehicles; also codes of practice for steel structures and bridges, and a revised edition of the Bridge Rules. On the mechanical side the designs included those for 104 new locomotive standard parts, and the conversion of metre-gauge locomotives to burn oil fuel. Oscillation trials with "XA," "XB," "XC" Pacific and B.E.S.A. 4-6-0 type locomotives were at first continued on the East Indian, Bombay Baroda & Central India, and Great Indian Peninsula Railways, to establish the influence of curved track, super-elevation, and spring-controlled trailing trucks on the value of flange forces. These trials were in accordance with the Pacific Locomotive Committee's requirements, but later in the year they were discontinued as a war measure. A War Section of the Central Standards Office was created in August, 1941, for arranging the supply of rolling stock to the Defence Department for war service in India and overseas. Some 200 metre-gauge locomotives, 8,300 metre-gauge wagons, and over 1,500 4 ft. 8½ in. wagons (converted from 5 ft. 6 in. gauge) as well as ambulance trains and other vehicles, were among the demands for overseas operations, and both broad and metre gauge stock was supplied for military use in India. All the metre-gauge engines had to be converted for oil burning, and 70 per cent. of the metre and 4 ft. 8½ in. stock had to be dismantled and packed for shipment to save shipping space. Wagons had to be strengthened to carry heavy armoured vehicles and the time of the designers was largely devoted to planning the best arrangement of ambulance vehicles. When all these activities are considered in conjunctio with the great volume of munitions turned out of railway workshops, it will be realised how high a percentage of the railway effort in India was devoted to the furtherance of the conduct of the war during the year under review.

The Pullman Monopoly in the U.S.A.

IN the February 27, 1942, issue of *The Railway Gazette* editorial comment was made on the case brought by the United States Government against the Pullman Company for alleged violation of the Sherman and Clayton Acts, which were framed to prevent monopolistic or trust activities in the U.S.A. The suit was filed in October, 1941, and on April 20 last an opinion was handed down by an expediting court of three judges, acting for the District Court of the Eastern District of Pennsylvania. The allegations against Pullman centred chiefly in the fact that this company has established what is, to all intents and purposes, a monopoly throughout the United States in the operation of sleeping cars, and as its associate, the Pullman-Standard Car Manufacturing Company, builds all the Pullman sleeping and other luxury equipment, competing builders of rolling stock have little chance of building sleeping cars, for the Pullman Company is not prepared to operate other than its own stock. The case against Pullman prepared by the Assistant Attorney-General has been upheld by the judges, and though they are prepared to hear further argument, and to grant to the Pullman Company such relief as may be equitable, before their opinion takes the force of a decree, their findings, which are set out on p. 60, are drastic. In particular, there is to be a complete separation of the Pullman operating and building companies; the Pullman Company is required to operate cars built by any company; the railways are to be at liberty to operate their own sleeping car service regardless of any existing Pullman agreements; and no "exclusive" contracts may be made by Pullman with railway companies.

In support of their opinion, the judges, without reflecting on the conduct by the Pullman Company of its business, contend that the Sherman Act has been infringed in that the company has manœuvred itself into a position of monopoly by a deliberate policy of buying out competitors. They argue that Pullman has obtained the exclusion of cars built by other manufacturers, notably the Budd Company, by insistence on "all or nothing" clauses in its contracts with the railways, and that there has been obdurate resistance by Pullman to changes in the designs of cars that have been pressed for by railway customers. The Pullman Company, on the other hand, strongly dissents from these findings, and points out that since its establishment in 1906, the Interstate Commerce Commission, under whose jurisdiction the Pullman business has been carried on, has made no complaint. Further, the unanimous testimony of railway officials in the recent inquiry has been that the Pullman pool system is efficient, economical, and of public benefit, and that it should not be disturbed; also the public patronage of Pullman facilities since their inauguration 75 years ago is sufficient testimony to public appreciation of the service offered. Finally, the Pullman Company considers it remarkable that, although the Sherman Act has been on the statute book since 1890, in the course of more than half-a-century the Government has never previously challenged Pullman methods as constituting an infringement of its provisions. It is the intention of the Pullman Company to appeal to the Supreme Court.

Almost at the same time that the judgment was made public, the 1942 report of Pullman Incorporated was issued. Although the total gross income of the associated companies reached the unprecedented level of $312,000,000, the consolidated net income of $10,361,210 fell $557,610 below the 1941 income, or from $3.31 to $3.14 a share. Whereas in 1930 net income was 9·4 cents to every dollar of gross revenue, by 1941 the figure was 6·2 cents, and by 1942 no more than 3·3 cents to the dollar; the reduction is the joint effect of reduced fares, and increased taxation and wages. Of the 19,072 million revenue passenger miles travelled in Pullmans in 1942, nearly 9,000 million miles were in troop movements, and by the end of March, 1943, 10,041,110 soldiers, sailors, marines and other military and naval personnel had been moved in Pullman sleepers since Pearl Harbour. This is a remarkable tribute to the efficiency of Pullman service, just at the time when the Pullman monopoly is being assailed. It is also not without interest, in the same connection, that the recent order for 1,200 troop sleeping cars of the new three-tier type, mentioned in the June 18 issue of *The Railway Gazette*, should have been placed by the Government's Defense Plant Corporation, in an open market, with the Pullman-Standard Manufacturing Company, and that the railways, through the Association of American Railroads, should have asked the Pullman Company to undertake the contract to lease and operate these cars.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Senior Railway Staff Wage Advance

70, Church Street, Woking,
Surrey. July 7

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—You were kind enough to insert in your publication a previous letter of mine, in the early days of the discussion, on the unfair treatment in the matter of war bonus, holiday pay, and overtime. Now that the principle of payment of war bonus is agreed, for which presumably we must thank the Civil Servants for their efforts, railway staff applications being apparently disregarded, it is hoped the Railway Executive Committee will see its way to back dating the bonus to the date when it was first put forward that salaries up to £1,000 should be covered by war bonus. This, I think, was in 1941. The senior staff would then be able to appreciate the efforts of the committee on their behalf in part at least.

We are not yet out of the wood; the question of holiday pay in lieu of leave and payment of overtime still remains to be settled. I notice some of your letters received are not helpful, for instance one by A.M.I.C.E.; does he wish to see us starving before anything is done? There are other ways of dying; for instance, due to mental anguish and often financial worries.

Yours truly,
P. W. RAYNER

Baker Valve Gear

121, Grange Road, Purley Oaks,
Surrey. July 5

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—"Metropolitan" (in your July 2 issue) is apparently unaware that the Baker Valve Gear was introduced into this country by the undersigned, about 16 years ago. Being interested in valve gears and having done much research work, I was convinced that the gear was superior to anything in use on British railways, and to that end built a small 4-6-2 locomotive combining what I considered the best points in British and American practice, including the Baker gear. This engine was shown working under compressed air at a meeting of the Institution of Locomotive Engineers, on the roll of which my name appears, and it was there examined by the late Sir H. Fowler and the late Sir H. N. Gresley, both of whom were interested, but not to the extent of trying it on one of their locomotives.

A Director of the Great Western Railway Company, the late Sir A. Brocklebank, recognised the merits of the gear, and brought the C.M.E., Mr. C. B. Collett, to my home—I was living at Norbury then—and the little locomotive was demonstrated in steam, and Mr. Collett remarked on the low fuel consumption. Sir A. Brocklebank suggested that a "Saint" class 4-6-0 then in the shops, should be fitted with the Baker gear and run in competition with a standard locomotive. I offered to drive the Baker-fitted engine (I am an old L.B. & S.C.R. engineman) and guaranteed to show a saving both in running and maintenance costs; but because of the sudden unexpected death of the Director, the project never got any farther. Later, Mr. R. E. L. Maunsell, accompanied by Mr. Clayton, called at my home and saw the locomotive, but although I made a small model of the gear and presented it to Mr. Maunsell, nothing came of it.

I therefore wrote a description of the locomotive and the Baker gear for a technical journal dealing with miniature engineering, and as a result the gear "caught on" and became immensely popular with builders of little locomotives. Hundreds of small Baker-fitted engines have been built, from quarter-inch scale upwards, to my own designs; and many small editions of L.N.E.R. Pacifics, S.R. "King Arthurs," "Lord Nelsons," etc., also L.M.S.R. "Princess Royals," and so on, have been fitted with Baker gear with great success in operation.

In your issue of January 16, 1942, you published a description of my experimental 4-6-2 *Tugboat Annie*. This locomotive has Baker valve gear for the outside cylinders, and Mr. Holcroft's conjugation for the inside cylinders. Incidentally, it is the opinion of many enginemen in this country, including the undersigned, that if the S.R. "Merchant Navy" locomotives had been furnished with Baker gear for the outside cylinders, and one of Mr. Holcroft's conjugations for the inside cylinder, many of their troubles would never have occurred, and they would be far more efficient than they now are. I sent an invitation to the S.R. folk to see *Tugboat Annie* at work, but it was not accepted. I also have an American "Mallet" 2-6-6-4, with four sets of Baker gear, giving every satisfaction.

Very truly yours,
L. LAWRENCE

Canadian National Railways,
17-19, Cockspur Street,
London, S.W.1. July 10

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I would like to thank Metropolitan for his complimentary reference in your issue of July 2 to our model locomotive, type "6100," which at one time was on show in the window of our Cockspur Street office. Metropolitan will be interested to know the model is at present on exhibition at the Glasgow Art Galleries, where it was sent at the suggestion of Dr. T. J. Honeyman, Director, Glasgow Art Galleries & Museums, in July, 1941.

Yours faithfully,
E. G. LAING,
Acting Publicity Representative

Stationmasters, Top Hats, and Vanishing Glory

London Midland & Scottish Railway Company,
Station Master's Office, Euston Station,
London, N.W.1. July 9

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It was with interest and some amusement that I read Mr. J. V. A. Kelly's letter in your issue of June 2, headed "Stationmasters, Top Hats, and Vanishing Glory" in connection with the old North London and the Midland Line.

Although it is, of course, a fact—speaking for myself—that I have not the authority to bribe passengers in the manner referred to, I am not prepared to agree that I, or my colleagues at the other stations mentioned, have less tact than the stationmasters of earlier days. I would say, from my experience in these days, that we almost require the tact of a diplomat.

Yours faithfully,
J. HARRISON,
Stationmaster

Publications Received

Railway Posters and the War, No. 6. London: *The Railway Gazette*, 33, Tothill Street, S.W.1. 7¼ × 4¾. 64 pp. Price 2s, 6d. net.—More than two years have passed since No. 5 of this series of booklets was published. During this time there have been few drastic changes in the public railway arrangements in this country, but those which have occurred have all been of the nature of suspensions or reductions of particular facilities, in order to leave the lines as free as possible for the transport of essential war traffics. The posters reproduced in this booklet, which include announcements of the Railway Executive Committee and of the individual railways, cover such matters as the discontinuance of first class coaches from October 6, 1941, on trains running wholly within the Greater London suburban area; increases in charges for railway-owned canals and ports; weight limitations on passengers' luggage; and reductions in restaurant car facilities. There are also the appeals that heavy parcels should not be sent by passenger train, in view of the employment of women porters; and the great "Is your journey *really* necessary" campaign designed to deter unnecessary travel. Restrictions of access to various areas, varied from time to time; the Orders relating to the transport of flowers; and the appeal to travellers to carry their own cups and glasses, are among other matters recorded in this useful reference booklet.

County of London Plan, 1943. London: Macmillan & Co. Ltd., St. Martin's Street, 10 in. × 12½ in., 188 pp. Illustrated. Price 12s. 6d. net.—Mr. J. H. Forshaw, the L.C.C. Architect, and Prof. Patrick Abercrombie, the town planner, have been working together for two years, and the result is a comprehensive vision of the Metropolis of the future. The plan has been presented to the members of the London County Council, and will now be studied by all interested parties who will in due course express their opinions to the council. The proposals touch the life of every Londoner at all points, his home, his work, his means of transport, his facilities for recreation and so forth.

In the section devoted to transport, a long-term construction programme is proposed for the establishment of a logical system of road communications to replace the present haphazard network of streets. The plan also outlines measures for the adaptation and extension of existing railway systems. Electrification, the provision of underground routes both on the north and south bank, the establishment of inner and outer systems related to markets, and the connection of terminal stations by a ring road are some of the suggestions made. The planners recognise, however, that this is a specialist subject and recommend an impartial detailed enquiry under Government auspices. (*See page* 55.)

XUM

The Scrap Heap

Hobby Helps Prisoners

By exhibiting scale models of aeroplanes and ships of his own making, Porter Aubrey Meads, of Chalkwell Station, has collected £20 from passengers for the L.M.S.R. Prisoners of War Fund. Contributions continue to increase week by week.

* * *

The Largest Union

Membership of the Transport & General Workers' Union—the largest trade union in the world—now stands at a new high level of 1,133,165, of whom 274,219 are women. The report of the executive council for the year to December 31, 1942, shows that income during 1942 totalled £1,325,464, also a record. The union's total balance is now £2,399,491.

* * *

Whitehall Staffs

We regret that in an item with the above heading, in our issue of July 9, errors occurred in the numbers of the staffs employed in certain Government Departments. The list, which was given by Sir Kingsley Wood in the House of Commons on June 24, was as follows :—

Ministry of Aircraft Production	16,026
Ministry of Economic Warfare	1,385
Ministry of Food	37,641
Ministry of Fuel & Power	4,816
Ministry of Information	2,805
Ministry of Information (Postal & Telegraph)	12,521
Ministry of Production	1,211
War Damage Commission	1,806
Ministry of War Transport	15,469

* * *

Dr. C. E. M. Joad on Railways

What improvements do you suggest should be made to British railways when the war is over ?

I have few complaints and, therefore, few improvements. You see, I was born in the railway age. Trains, fiery monsters snorting and roaring through the night, were to me things of mystery and wonder ; they put poetry and romance into life as surely the motor-car has taken them out of it. Therefore, like so many men in old middle-age, I would ask nothing better than to go back to the world of my youth in which we all rode in trains—and cars were unknown. Would I make any alterations in them ? Well, here are five :

(1) An obvious one, that we should have reasonably cooked meals; that they should not all be taken out of tins and boxes, and that some food should be cooked on the train instead of bought ready cooked, and then warmed up on the train.

(2) That windows should be one single whole pane of glass through which you could look out into the country instead of divided, as they still are in most compartments, into three separate sections.

(3) An extension of the system of holiday trains in which you embark without knowing where you are going, and on which you live and have your meals for the whole week or so of the holiday.

(4) The resurrection of a number of small railways—some of them are toy railways—which have for one reason or another been shut down. For example, the toy railway from Boot to Rabenglass, in Cumberland ; the railway that ran along the Manifold Valley in Staffordshire ; the railway from Beddgelert to Portmadoc that ran through the Aberglasyn Pass. All these lines went through lovely country and introduce one to scenery far better than can be viewed from a main road.

(5) That railway travel should be free. I cannot see why we should be charged for travelling about the country's railway system any more than for breathing its air, for drinking its water, or for walking or cycling on its roads. Let all the railways be run by the State and paid for by the taxpayer, and let the taxpayer ride free on them whenever he so desires.—*From the "Sunday Dispatch."*

* * *

Good for Mr. Brown, Cabinet Minister

Mr. Ernest Brown, Minister of Health, who spoke at Wallasey recently, showed himself a true democrat when he left for London after the meeting. On arriving at Lime Street Station Mr. Brown found a long queue of people waiting to join the London train. He was taken to a specially-reserved compartment with drawn blinds, and the first thing he did was to remove the "reserved" label from the window and pull up the blinds. He then called an official and told him to bring along six of the people waiting in the queue. The official demurred, pointing out that the compartment was reserved for a Cabinet Minister. "I am the Cabinet Minister," said Mr. Brown, "and I am not going to occupy a compartment alone with people standing in the corridor." Mr. Brown's fortunate fellow-passengers would no doubt find their benefactor a cheery and chatty companion.—*From "The Liverpool Daily Post."*

* * *

Tailpiece

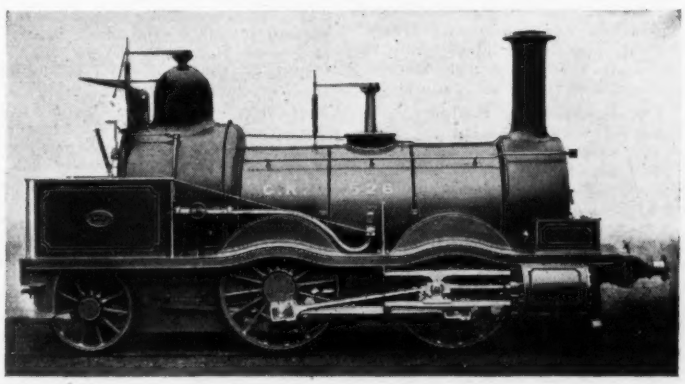
(Germany now administers 90,000 miles of railways in Europe, three times more than before the war)

They make indeed a formidable whole,
The miles you builded plus the miles you stole,
And so exposed, as we have heard it said,
To hate around and "busters" overhead,
That soon you'll see without undue distress
Your mileage growing beautifully less.

E. C.

"You have just been listening to Miss Daisy Clutterbuck announcing the departure of the 4.30 Liverpool train from Platform 14, and reminding passengers for Manchester to change at Crewe. Bon voyage, everybody, BON voyage!"

[*Reproduced by permission of the proprietors of "The Tatler & Bystander"*



Neilson* 0-4-2 *locomotive of* 1866, *Caledonian Railway

Cylinders 17 in. × 20 in. Coupled wheels 5 ft. 0¾ in. dia. Weight in working order with tender 47 tons 9 cwt.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

UNITED STATES

Pullman Monopoly Suit

An expediting court of three judges, acting for the District Court for the Eastern District of Pennsylvania, on April 20 handed down its opinion in the suit which had been filed eighteen months previously by the Government against the Pullman Company for alleged violations of the Sherman and Clayton Anti-Trust Acts. The violation claimed was that the Pullman companies held an unlawful monopoly in the operation of sleeping cars in inter-state commerce; and the court supported this view, holding that there had been a violation of the Sherman Act. Further discussion is to take place before the opinion has the force of a decree, and a decision is reached as to the equitable relief which may be granted to the Pullman Company; but in the meantime the latter has signified its intention of carrying an Appeal to the Supreme Court of the United States as soon as a decree is entered. Six items were laid down by the court as requiring inclusion in the decree, as follow:—

(1) The separation of the business of the Pullman Company from that of the Pullman-Standard Manufacturing Company.

(2) The establishment of the right of a railway to purchase used sleeping cars from the Pullman Company.

(3) A requirement that the Pullman Company should operate and service sleeping cars designed and built by any manufacturer, and tendered to the former for operation and service.

(4) The right of any railway which may wish to operate all, or a portion of, its own sleeping car business so to do, regardless of existing sleeping-car contracts with the Pullman Company.

(5) An obligation on the Pullman Company to furnish through sleeping car service to any railway or group of railways which may desire such services established.

(6) The elimination of "exclusive" dealing contracts between the Pullman Company and the railways, and the abrogation of such provisions in existing contracts. (*See editorial, page* 57.)

A New Deviation

As part of the grade-crossing elimination programme of the State of New York, the New York Central System has just completed a $3,500,000 deviation of its four-track New York-Chicago main line through the town of Hertimer, 224¼ miles from New York. The deviation is over 3 miles long and has involved the laying of 14 miles of single track, and the construction of five bridges and a station.

Signalling of the deviation is on the NX electric interlocking system of the General Railway Signal Company, whereby, to line up any route, the operator presses an entrance knob on the diagrammatic control panel at the point where a train is about to enter, and an exit button where the train is to leave, and thereby automatically sets the route throughout, with all relevant signals and switches.

The work, which has eliminated five important level crossings, has been carried out jointly by the N.Y.C.S. and the State Department of Public Works under orders of the Public Service Commission.

Rock Island Collision

On April 4 a head-on collision, involving the deaths of two engine crews and injuries to about 50 passengers, occurred on the Chicago, Rock Island and Pacific Railway, about 4 miles east of Little Rock, Arkansas, just after midday, between Train No. 45, westbound from Memphis, Tennessee, to Hot Springs, Arkansas, and Extra No. 1703, a troop train from Little Rock to Memphis. The former consisted of a combination baggage-mail car and a coach, both of which were derailed; also a second coach, a chair car, a dining car, a lounge car, and two sleeping cars.

The troop train was made up of a refrigerator car, which was damaged seriously; six tourist sleepers (of which the first was derailed at the leading end); a dining car; and a caboose. Both engines were damaged badly and one turned over. All the injuries occurred in the passenger train, but only one case was reported as serious. The accident occurred on level and fairly straight track, operated by train orders and timetable, and without block signals; information is not yet available as to the cause.

ARGENTINA

Tribute to a Railway Pioneer

On May 22, a pedestal, erected in Quilmes, a suburb on the Buenos Ayres Great Southern Railway, was unveiled in memory of William Wheelwright, the American railway engineer, in the presence of a large gathering which included the British and American Ambassadors, representatives of the Buenos Aires Provincial Government, the municipal authorities, prominent railway officials, and leading members of the British and American communities, as well as a large number of Argentines. The unveiling ceremony was performed by the Mayor of Quilmes, Dr. Manuel J. Cruz, and Señor Juan Domingo Pozzo, Chairman of the Council of Historical Studies, briefly outlined Wheelwright's career and achievements as a railway constructor in Chile and Argentina. He recalled that Wheelwright surveyed and built the first railway in any South American republic, that from Caldera to Copiapó in Chile, 51 miles long, opened in 1850. In 1863 Wheelwright undertook the construction of the first section of the Central Argentine Railway from Rosario to Córdoba, opened to service in 1870. The railway from Buenos Aires to Quilmes was opened on April 18, 1872, when Wheelwright, who had built the line and the adjoining port of Ensenada, drove the first train into the station. The cost of the tablet, which, in addition to an inscription, has panels showing scenes associated with Wheelwright's enterprises, was defrayed by the B.A.G.S. and Central Argentine Railways and the Council of Historical Studies.

The Transandine Railway

A decree issued by the Argentine Government authorises the appropriation of $2,500,000 allocated for the reconstruction of the above railway to be increased by a further $1,000,000 in order to expedite the work, with a view to the re-opening of the line in the early part of 1944. Considerable progress has already been made with the work of reconstruction on which some 900 men are at present employed. Between Mendoza and Potrerillos, a distance of some 50 km. (31 miles) the track has been completely relaid and is open for traffic, and a considerable stretch of the permanent way between Guido and Uspallata, approximately 20 km. (12 miles) has also been repaired. The reconstruction of two tunnels as well as several bridges over the Mendoza River is also in hand.

The Argentine State Railways administration plans, as soon as the line is completely open to traffic, to operate a frequent service of motor coaches of 640 h.p., similar to those already in service on the other State lines, with seating accommodation for 90 passengers, a luggage compartment, and kitchen car, designed to cover the journey between Mendoza and Los Andes in 6½ hr.

CHILE

Transport Nationalisation Proposals

According to advices from Santiago, the Chilean Government has sent a project to Congress, providing for the opening of negotiations for the purchase and nationalisation of the electrical services, railways, and street and urban bus lines. It is emphasised that the object of the measure is merely to obtain for the Government the necessary powers to purchase the systems specified, in the event of such a policy being deemed convenient. It is stated that the acquisition of the urban transport system by the Government would solve the problem of providing an efficient service at low fares, which private concerns have been unable to do under existing economic conditions.

ITALY

Railway Developments

According to a recent report, work in hand by the Italian State Railways entails an expenditure of about 130,000,000 lire. In addition, plans are being prepared for the execution of the following schemes:—

(1) Modernisation and partial reconstruction of the railway layout at Savona.

(2) Construction of a connecting loop between the Alessandria-Turin and Alessandria-Novara-Arona main lines.

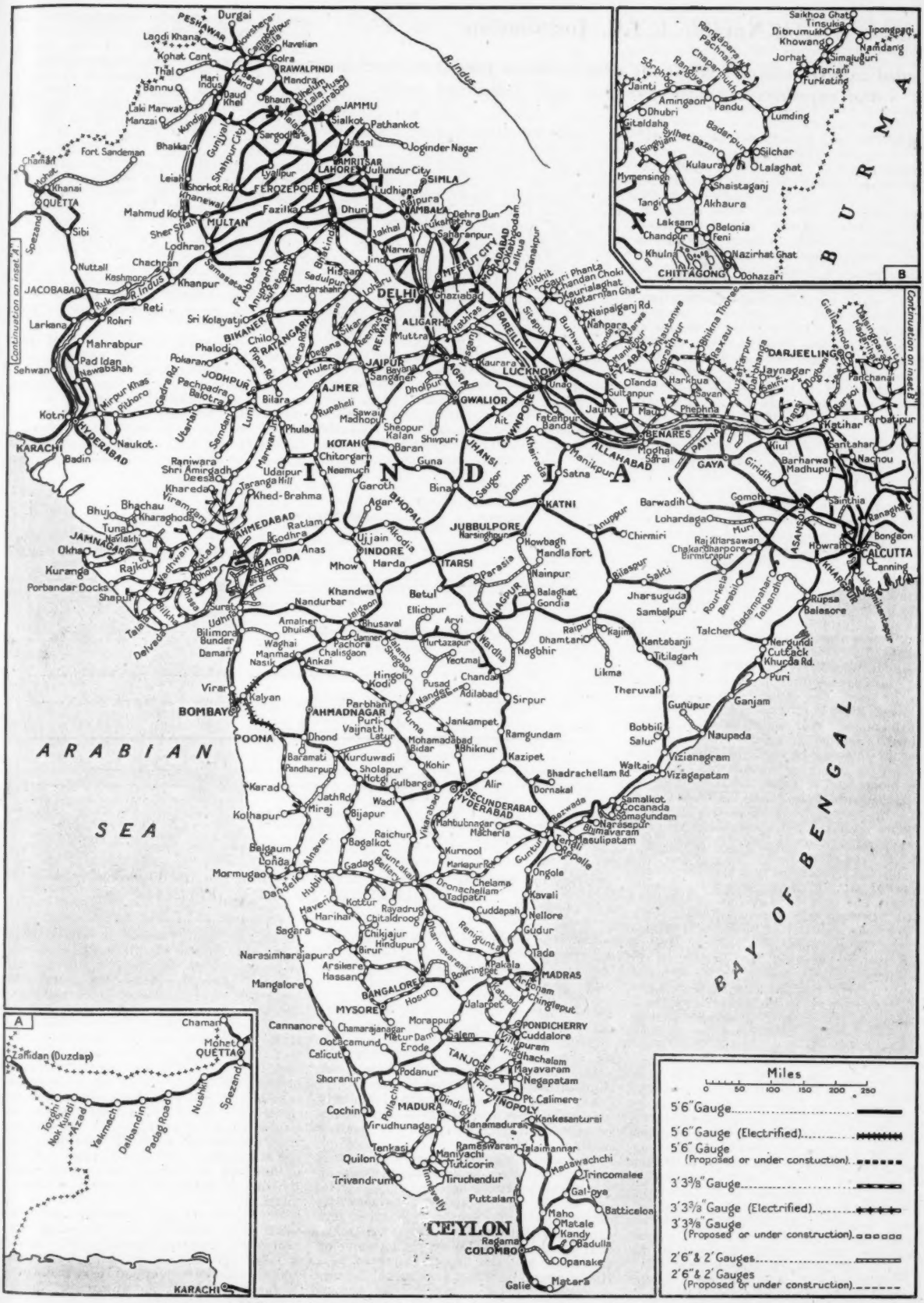
(3) Modernisation and partial reconstruction of the system in the neighbourhood of Rome, in connection with the new Termini railway terminus, which is not completed.

(4) Provision of a siding and other railway facilities on the Littorio pier of Civitavecchia Harbour (the main port of embarkation for Sardinia), about 50 miles to the north of Rome on the line to Pisa.

(5) Construction of a standard-gauge line between Brescia, Gardone Val Trompia, and Brozzo, the survey for which has been completed. The laying of a branch line to Lumezzane, roughly half-way between Brescia and Gardone Val Trompia, is under consideration. There is already an electric-tram line, owned and operated by Tranvie Elettriche Bresciane, between Brescia and Gardone Val Trompia, *via* Lumezzane; the distances from Brescia are about 12 miles and 9 miles, respectively.

(6) Changes in the general layout of the railway system to the north of Trieste at and near the point where the Trieste-Ljubljana (Jugoslavia) and Trieste-Gorizia-Piedicolle main lines cross. A connecting loop exists between Villa Opčina Station on the latter line, some 10 miles to the north of Trieste (Campo Marzio Station), and Opčina Station on the former line which passes underneath the Trieste-Gorizia line; Opčina is about 18 miles from Trieste (Centrale). Recently the names of these two stations have been changed: Villa Opčina has become Poggioreale del Carso, and Opčina, Poggioreale Campagne.

Merone Pontenuovo Station, on the steam-worked State Railways line between Como and Lecco, to the north of Milan, is to be known as Merone. It is about 14 miles to the east of Como, where the line crosses the Milan to Canzo-Asso electric line owned and worked by Ferrovie Nord Milano. The Nord Milano station close to the crossing is to retain its name, Merone Pontenuovo Nor



Revised map of the railways of India, indicating gauges (see editorial article, page 56)

A Notable C.T.C. Installation

Coded carrier control extends the area operated from one machine and expedites sending of control and indication codes

DESPITE war conditions, the year 1942 witnessed a striking increase in the number of C.T.C. installations in the U.S.A. The unprecedented volume of traffic thrust by the emergency upon railways of the Middle West and Western States made certain signalling projects, that were already in hand at the time of Pearl Harbour, of critical importance, and the War Production Board has given every aid to enable them to be completed as quickly as possible. Every effort has been made in these projects to conserve vital materials, and particularly to save copper by the reduction of the number of line wires ; and in a notable installation on the Southern Pacific where a single-line section 80·5 miles long is now controlled from one machine, carrier current apparatus has been used for the first time for handling C.T.C. control and indication codes.

Traffic conditions on this section of line are shown in the accompanying diagram. The terrain is severe between stations " A " and " E," the railway winding its way on gradients up to 1 in 37 through canyons and mountain country where the speed of passenger trains is limited to a maximum of 25 m.p.h. Because of the nature of the country the length of passing loops is, in certain cases, limited ; although the majority of these loops have accommodation for freight trains of 100 to 120 wagons, the capacity of three is limited to 53, 67, and 90 wagons respectively. As some of the freight trains load up to 5,000 tons, equal to about 100 wagons, the problem of arranging suitable meeting places when working on the train order system of traffic control was not easy, if all traffic was to be kept on the move. War conditions have greatly added to the burden on this stretch of line, and as many as 14 extra passenger trains have been scheduled in one day. During the month of December, 1942, the number of movements daily varied between 31 and 39 ; this included the movement of bank engines returning light after assisting eastbound trains from " A " to " B," and " B " to " E " respectively.

The C.T.C. control machine has been installed at " B," which is a subdivisional point. The time code system of C.T.C. is used ; this requires only two line wires, for direct coded control of points and signals at the distant stations. The capacity of this system, however, is limited to 35 distant locations, beyond which limit a choice hitherto has had to be made between changing over to the three-line circuit code system, or the use of a second control machine for the farther section of line. Although the use of the three-line system more than doubles the capacity of any one machine, the control of so many locations is open to an operational disadvantage: it is possible for only one control code or one indication code to be transmitted at a time. If a control code is being sent out from the machine, and simultaneously some indication code, such as a change in a track circuit from " clear " to " occupied," is initiated, the transmission of the indication code is held up until the sending of the outgoing control code is completed. This would not be a serious matter on a comparatively short section of line, as for example the 26·4-mile stretch from " B " to " A " ; but if operations on a second section, like that from " A " to " W " were added there might be an inconvenient delay in handling the control and indication codes for the distant section.

The use of coded carrier control for the section from " A " to " W " serves the two-fold purpose of avoiding the need for any further line wires, and also enabling the " AW " section to be handled simultaneously with that from " A " to " B." The two line wires from " B " to " A " carry the ordinary d.c. coded currents for the control and indication of the points and signals on this same section ; but superimposed on these two lines are the coded controls for the " AW " section conveyed in high-frequency carrier currents. The frequency used is 10,000 cycles per second for controls, and as this is above the frequency of speech there is no interference with telephone communication. At station " A " a field control unit receives the codes transmitted by the carrier, and converts them into standard d.c. codes for the section " AW." Indication codes from this same section are transmitted back by ordinary d.c. impulse cycles as far as station " A " ; there the field control unit imposes these codes upon a second carrier having a frequency of 12,000 cycles per second, by which they are transmitted to the control machine at " B." The section of line from " B " to " E " is controlled by standard d.c. codes on the two line wires. With this arrangement control codes can be sent out simultaneously to locations in the " BA," " AW " and " BE " sections, and similarly indication codes from all three sections can be received at the same time by the control machine.

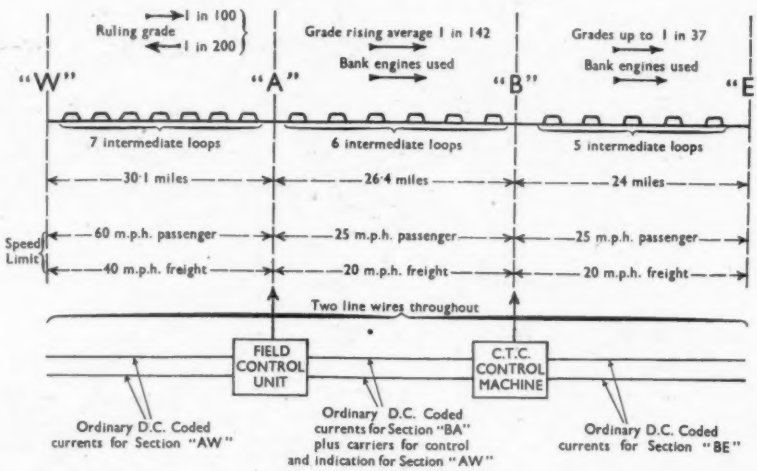


Diagram showing grades and traffic conditions on an 80-mile single-line section controlled by one C.T.C. installation

The actual signalling generally accords with the usual American practice, except in the case of the station-entering signals. Here one of the many, though characteristic divergences from standard practice that can be noted in various parts of the U.S.A. is apparent, in that for a through move on the main line the aspect displayed is a single green, instead of the usual " green over red." Between the various passing loops one or more sets of intermediate signals are installed, according to the distance between the loops, so that following trains may proceed at the closest possible headway. Since the installation of C.T.C. a considerable speeding up of freight train movement through the section has been effected. The most marked improvement has taken place on the easier section, from " A " to " W," where, it would seem, advantage is now able to be taken of the higher permissible speeds. Previously the average time taken by eastbound freight trains to cover the 30·1 miles from " W " to " A " was 3 hrs. 13 mins. ; since the introduction of C.T.C. the time has been reduced to 2 hr. 3 min. In the opposite direction the pre-C.T.C. time of 3 hr. 4 min. has now been reduced to 1 hr. 51 min. Passenger trains running behind time are now able to recover approximately 10 to 15 min. in the complete 80·5-mile C.T.C. section.

This substantial saving in time has accrued from a variety of reasons. The fact that everywhere in the section enginemen are now running to signal indication has eliminated numerous stops to receive orders ; the use of power-operated points instead of the previous hand-throwing enables the turnouts to be taken with very little reduction in speed, and this latter factor has alone resulted in a saving of 5 to 8 min. in the negotiation of each pair of points. Then, of course, with the illuminated diagram before him, and the automatic train graph recorder in the desk, the traffic controller at the subdivisional point has at all times a clear picture of traffic conditions over the whole 80·5-mile section, and can arrange meets between opposing trains so as to cause the minimum of delay to each. These advantages are characteristic of all C.T.C. installations on single-track railways, but they require particular emphasis in this case, as showing that the volume of work resulting from the simultaneous control of three sections of line has not proved to be more than the one traffic controller could efficiently manage.

For details of this interesting piece of work we are indebted to our American contemporary *Railway Signaling*. The major items of signalling equipment, including the coded carrier current apparatus, were manufactured by the Union Switch & Signal Company.

Liquid Gas as Motor Fuel in Germany

Some details of the preparation and increasing use of Treibgas

THE crude liquid obtained on compression of the propane-butane gas fraction may have a variety of compositions. If the mixture is to be used as a motor fuel care is taken, however, that the stabilisation process is so adjusted as to produce a mixture with, roughly, equal proportions of C_3 and C_4 hydrocarbons. The other properties of such a mixture, represented by one of the most widely sold German brands, are as follow :—

Net calorific value ...	22,600 k. cal. per cu. m. 10,950 k. cal. per kg. (19,700 B.Th.U. per lb.)
Density of gas at 15° C. and 735 mm. ...	2·06 kg. per cu. m.
Density of liquid at 15° C.	0·54 kg. per l.
Boiling point at 760 mm.	30° C.
Combustion air ...	26·9 cu. m. per cu. m. 13·1 cu. m. per kg. (210 cu. ft. per lb.)

In Germany, the entire output of these liquids is used for automotive purposes and has proved to be of the very greatest value in keeping German commercial vehicles on the road since the war began. Apart from the small quantities of Ruhrgasol produced at the Nordstern colliery, the German varieties of liquefied propane-butane mixtures go by the name of Flüssiggas or Treibgas. In this article the term Treibgas is used to include all varieties of C_3-C_4 mixtures, including Ruhrgasol. Treibgas is sold by three concerns in Germany. The I.G. Farbenindustrie A.G. sells, as Leuna-Treibgas, all the C_3-C_4 products of its hydrogenation and Fischer-Tropsch plants ; the Deutsche Erdölraffinerie A.G. (Deurag) sells its C_3-C_4 cracked gases as Deurag-Flüssiggas ; and the Benzol-Verband sells the products of the Ruhr hydrogenation and Fischer-Tropsch plants as B.V.-Treibgas for the Westdeutsche Treibgas-Vereinigung, as well as the Ruhrgasol made at Nordstern. Treibgas is sold in steel bottles.

In 1934, after the Nordstern plant had begun to produce Ruhrgasol, there were 50 commercial vehicles in the Ruhr using this fuel. By the end of 1937 about 12,000 vehicles in the whole of Germany were running on Treibgas, and they used some 50,000 tons of the fuel during the year. It was announced at the beginning of 1938 that a further 10,000 lorries were expected to be converted within the next 12 months. Towards the end of 1939 there were said to be 40,000 German vehicles using Treibgas and there were still supplies available, although in October of that year the German Ministry of Transport had ordered all commercial vehicles of over 1½ tons, which were to be allowed to continue to operate during the war, to convert as soon as possible unless they were in use in agriculture. Shortly after this, the order was given an official interpretation ; it was to apply only to vehicles garaged within 10 miles of a Treibgas distributing station, and was to begin with vehicles in the over-3-ton class. When all such lorries had been coverted a beginning was to be made on the 2-3-ton class, and finally the 1½-2-ton vehicles were to be converted. The speed of conversion seems to have exceeded expectations and to have resulted in a shortage either of Treibgas or —more likely—of bottles, for on October 1, 1940, it became necessary to have an authorisation for the purchase of Treibgas.

By the autumn of 1941, however, the bottleneck had been overcome, and on October 21, 1941, Treibgas supply was freed from all control. On April 24, 1942, however, Treibgas was once more made subject to motor fuel restrictions. The number of Treibgas-driven vehicles in Germany, at the beginning of 1942 was probably 100,000, or 20 to 25 per cent. of Germany's total pre-war commercial fleet. Such a number of vehicles would use about 400,000 tons of Treibgas a year, equal to about 40 medium tanker loads, or to the total output of eight average-sized Fischer-Tropsch plants, or to the annual output of all fuels from one of the larger German hydro-genation plants.

By the law of April 1, 1935, a 50 per cent. tax rebate is allowed in Germany to vehicles using certain home-produced fuels, among which Treibgas is included, and therefore the conversion costs of RM. 250-300 are very quickly written off. In the case of a 5-ton lorry, for example, amortisation is complete in about 6 months. In 1939, after several years of experience had been gained in converting a large number of vehicles from petrol to Treibgas, the usual cost of conversion was about RM. 400. Later, however, when the equipment became more standardised, conversion costs dropped, and had fallen to RM. 280 early in 1940. Further standardisation which was being planned at that time was expected to reduce the cost of conversion to RM. 250. Treibgas prices are fixed at 15 per cent. below those of motor spirit, weight for weight, and there is therefore an appreciable economy in fuel costs, to say nothing of the decreased expenditure on engine maintenance and lubricating oil which usually results from conversion.

The first bottles used by the Benzol-Verband for the sale of Ruhrgasol in 1934 were 1·55 m. long and 0·32 m. in outside diameter, and were made of 3-mm. seamless drawn tube ; they weighed 53 kg. empty and the charge of 70 l. weighed 46 kg. Later, the Benzol-Verband and the other sellers of Treibgas adopted the use of lighter bottles so as to allow their products to be used economically on light goods vehicles ; the new bottles were 1·21 m. long, had an external diameter of 0·32 m. as before, and weighed only 40 kg. when empty and 73 kg. when holding a charge of 60 l. of liquid. A few still smaller bottles, holding a charge of 22 kg., were also used by the Deurag. In recent years, the 1·2-m. bottle has become almost standard. All the bottles have a safety seal which blows at a pressure lower than the test pressure of the bottle, so that the danger of explosion through accidental overheating is avoided.

A comparison between the net and bottled weights and the gross weight per 1,000 k.-cal. of a number of commonly used motor fuels is given in the following table :—

Fuel	Calorific value, k.-cal. per kg.	Weight of container, kg.	Net weight of contents, kg.	Kg. per 1,000 k.-cal.
Motor spirit...	10,000	1·0	10	0·11
B.V. Treibgas	11,000	53·0	46	0·195
Ruhrgasol ...	11,000	53·0	43	0·205
Compressed methane ...	10,900	67·0	13	0·56
Town gas ...	6,500-8,000	67·0	6	1·87-1·55

It will be seen that there is not a great difference between motor spirit and Treibgas as regards their gross weight per unit of heat carried, but that methane and town gas, which are not easily liquefiable, both throw a considerable extra load on vehicles using them, on account of the small quantity of fuel that can be compressed into a bottle of a weight comparable with the weight of a Treibgas bottle. This difference can be expressed in another way : it means that, since the calorific values of all the usable fuels are of the same order, the radius of action of the vehicle propelled with methane or town gas is much less than that of the vehicle using Treibgas, which is itself at some small disadvantage as compared with the petrol-driven vehicle if only a single bottle is carried (which in practice is not usually the case, however).

Even at the end of 1937, when only some 12,000 vehicles in Germany were using Treibgas, about 120,000 bottles were in circulation. This was because for every bottle mounted on a vehicle and in actual use there would be one spare bottle on the vehicle itself and several others in the premises of distributors, at the works which make Treibgas, and between the two.

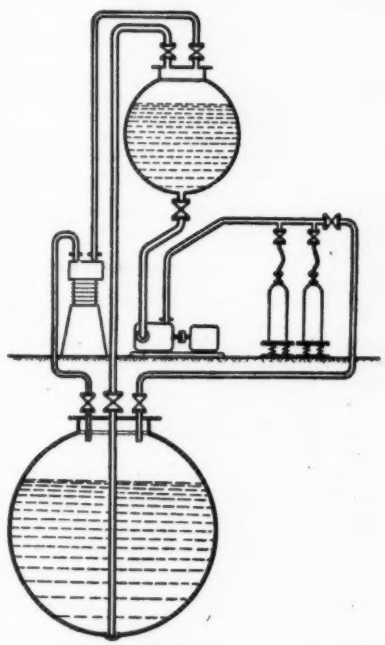


Fig. 1—Treibgas filling station

To reduce the number of bottles in circulation, which would, on the same proportionate basis, reach a figure of over a million when the German programme of domestic production of motor fuels was complete, filling stations were set up in a few towns where considerable quantities of Triebgas were in use. The liquid is sent from the works to the filling stations in pressure tank wagons, from which it is pumped into underground tanks similar to those used for petrol in normal filling stations. One method of operation of a Treibgas filling station is illustrated in Fig. 1. Besides the underground tank or tanks, the plant includes two pumps, one for gas and one for liquid, an intermediate tank above ground level, and a number of taps. The gas pump sucks gas from the intermediate tank

and drives it into one of the underground tanks; once pressure is built up, the liquid Treibgas is forced up from below into the intermediate tank, where it takes the place of the gas. From here it flows by gravity to the liquid pump, which compresses it to several atmospheres and drives it into the ring main which serves the taps; the taps feed direct into the bottles which are attached to them for filling. Any liquid not taken up by the bottles flows back to the underground tank.

A plant of this kind with four taps can fill 500 bottles in 8 hours; but, although there are many such plants in Germany, it was estimated in 1939 that four to five bottles were still circulating for every one in actual use. As compared with the situation in 1937-8, however, this was a distinct advance and as the number of Treibgas-driven vehicles in Germany early in 1940 was about 50,000, requiring about 250,000 bottles, a four-fold increase in use had been achieved with only a doubling of the number of bottles.

The most recent development in the supply of Treibgas is an arrangement devised by the Pintsch concern for the direct refuelling of bottles fixed on vehicles. The plant consists of a storage tank, a fluid-circulating pump, and the usual kerb-side "pump" as commonly used for petrol. The liquid is drawn from the tank at about 12 atmospheres pressure, flows into an auxiliary tank attached to the "pump" and is then delivered through a volume meter to the bottle, which is attached to the "pump" with a flexible pressure hose. This method of distributing Treibgas was found to be so successful that the Berliner Verkehrsbetriebe decided late in 1939 to adopt it for the whole Berlin bus system, and, according to the latest reports, it has given every satisfaction since coming into operation.

It is usual for a vehicle to carry at least two bottles of Treibgas. These may be either slung on each side of the chassis with the offtake end pointing forward, or in a vertical inverted position behind the cab or at the back of the vehicle. As the various components of the Treibgas evaporate at different rates, abstraction of the fuel as gas from the free space in the bottles would result in a gradual concentration of the higher boiling butanes, and it is therefore found best to remove the fuel in the liquid state through a pipe passing through the neck of the bottle and dipping below the level of the liquid inside. In order that a bottle may be used in either the vertical or the horizontal position, and to permit the withdrawal of the last few drops of Treibgas when the bottle is vertical, the tube is provided with an automatic ball-valve just inside the neck of the bottle.

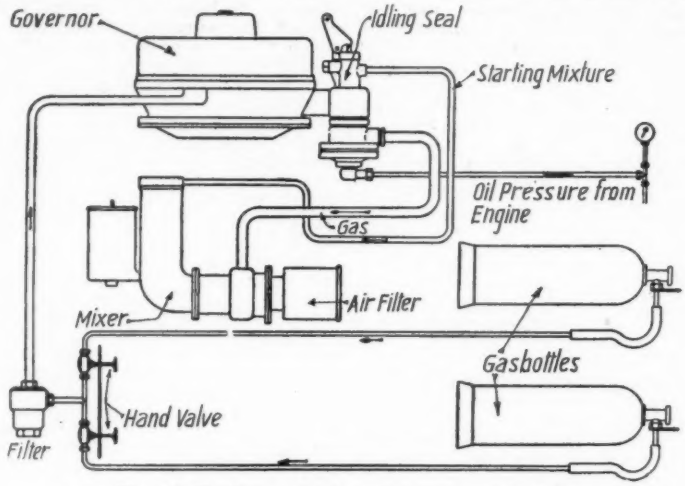


Fig. 2—Treibgas arrangement from a road vehicle

Fig. 2 shows the usual arrangement of equipment for supply of gaseous Treibgas to the engine. The liquid passes *via* a hand-valve, controlled from the driver's cab and included in the circuit for reasons of safety, to a pre-heater (not shown) using exhaust heat, and then to the governor.

Treibgas can be used in Otto-cycle engines without their being altered. Its use in diesel engines necessitates expensive changes in the cylinder head. Actual running with Treibgas is very similar to that with petrol. Slightly less ignition advance is required to produce the same power output, and the engine runs more softly on account of the greater anti-knock properties of the Treibgas. Wear on pistons and bearings is therefore reduced. As the fuel is a true gas and vaporises thoroughly even at quite low temperatures, starting from cold is very easy. For the same reason, combustion is almost complete within the cylinder, so that both the carbon deposition and the exhaust losses are small.

Perhaps the most valuable property of Treibgas, however, is that, being a gas, it does not condense like petrol on the cylinder walls when the latter are cold; thus fuel consumption is improved.

For the foregoing information we are indebted to two admirable articles in the columns of our associate, *The Industrial Chemist*, and to these we would refer readers seeking more detailed information, particularly that in the September issue, page 339, entitled "Liquefiable Hydrocarbon Gases—Part II; Use as Motor Fuel."

"THE PRODUCTION AUTHORITIES GUIDE."—The Ministry of Production has issued a guide which shows at a glance the authority responsible for the production of any given manufactured product which is not obviously the concern of a single Government department. Industry and departments know, for instance, that tanks are the responsibility of the Ministry of Supply, and aeroplane engines that of the Ministry of Aircraft Production; but between such well-defined classes of munitions there is a large number of products which, because they are used in a great variety of finished articles, or for many different purposes, are common to more than one department. These products are so varied that they include, for example, agricultural machinery; anti-gas equipment; benzol; bicycles; ball bearings; bolts, nuts, and screws; cement; clothing and footwear; locomotives; pencils; tobacco; and tyres. "The Production Authorities Guide" contains a list of 194 products; the production authorities responsible for each; and other details such as whether the control is exercised by order, or whether there is an advisory trade panel. It has been printed for the Ministry of Production by H.M. Stationery Office, from which it is obtainable, price 4d. It deals only with manufactured products; raw materials are dealt with in the "Raw Materials Guide," issued by the Ministry of Supply, and also published by H.M. Stationery Office, price 1s. (1s. 2d. post free).

"DESIGN FOR ECONOMY—PAPER IN BATTLEDRESS."—This exhibition, after a very successful showing in Manchester, was opened at Radiant House, Bolt Street, Liverpool, on June 21, by the Lord Mayor, Alderman R. Duncan French, J.P. Mr. Sidney T. Garland, General Manager of the Waste Paper Recovery Association Limited, supported the opening speech and stressed the fact that the amount of paper collected each week was some hundreds of tons below that required for production; had it not been possible to accumulate some stock last year, the war effort would have been badly impeded. At the present rate of consumption, that stock could not last long; and, if needs became greater, as well they might, then it will not last many weeks. Much had been done to economise, as the exhibition showed, but there were limits to economy. Other means of providing for war needs must be found at once. He stated that it was known that the paper required was actually in this country: if everybody stopped throwing away bus tickets, stopped lighting fires with paper, and turned out the accumulations existing in homes and offices, there would be enough.

RAILWAYMEN'S CONTRIBUTIONS TO RED CROSS.—The income of the Red Cross & St. John organisation has increased by nearly £1,000 a week as a result of the decision of railway workers throughout the country to double their contributions to the Red Cross Penny-a-Week Fund. They are now contributing at the rate of nearly £3,500 a week. More than a million workers in industry and commerce have increased their weekly subscriptions to the fund.

MORE MEXICAN AIR LINES—The Compania Mexicana de Aviacion, a subsidiary of Pan American Airways, has begun twice-weekly services between Mexico City and Habana, and more frequent flights to Merida in Yucatan. Additional flights daily between Brownsville, Texas, Mexico City, and the Panama Canal Zone, with stops in Guatemala, and Costa Rica, are included in the company's arrangements. New services for passengers, mail and express, thrice-weekly, have been established by the Aernaves de Mexico between Mexico City and Nautla, in the Province of Veracruz.

Changing Over from Oil to Coal Fuel

Mechanical stokers are fitted to some 2-10-0 locomotives on the North Western Railway of India

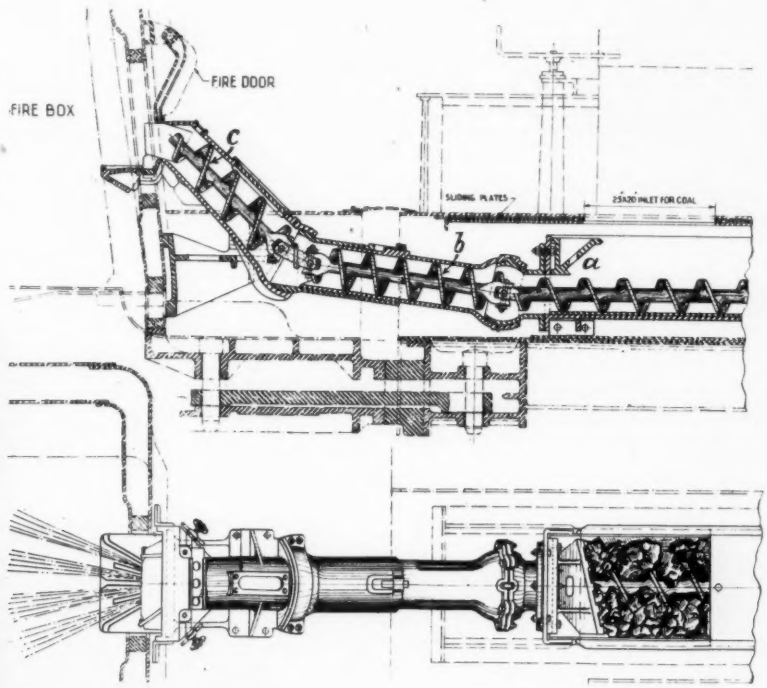
THE North Western Railway of India has thirty large four-cylinder 2-10-0 locomotives of the "N" class. These fine goods engines, which develop a tractive effort of 56,324 lb. at 85 per cent. boiler pressure, were built in 1919 by the North British Locomotive Co. Ltd. of Glasgow for service on the Ghat sections of the G.I.P. Railway. When those sections were electrified, the engines were transferred to the N.W.R. for hauling trains of 2,300 tons over the 1 in 190 grades of the Karachi—Kotri and the Kotri—Rohri sections of the main line.

For many years, most of the locomotives working from the Karachi area have been oil-fired because oil, imported by ship, has been available at an attractive price; but of recent years, in spite of the long haul from the Bengal coalfields, it has been found preferable to burn coal, and all except a few shunting engines have been converted accordingly. The conversion of the "N" class engines has necessitated the fitting of mechanical stokers, as it was impossible to feed their grates by hand because of their length, which is 11 ft.; their area is 45 sq. ft.

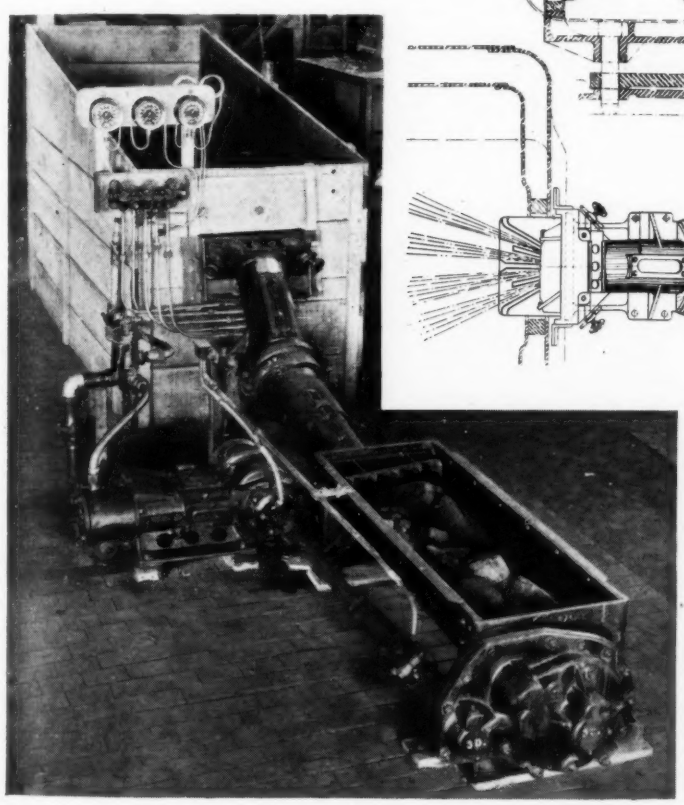
By the courtesy of Mr. H. Hinton Cooper, Chief Mechanical Engineer, N.W.R., we are enabled to publish the description below of the fitting of the mechanical stokers to these engines.

The mechanical stokers were supplied by the Standard Stoker Company Inc. of U.S.A., and the work of fitting them was done in the locomotive workshops of the railway. The stoker is the makers' type H.T.1. A screw conveyor, which is driven by an independent steam engine, delivers the coal on a distributing table at the fire-hole, whence it is shot into the firebox by a series of steam jets. The fireman controls the supply of coal to the front, back, or sides of the firebox as may be required by adjusting the valves that operate the jets.

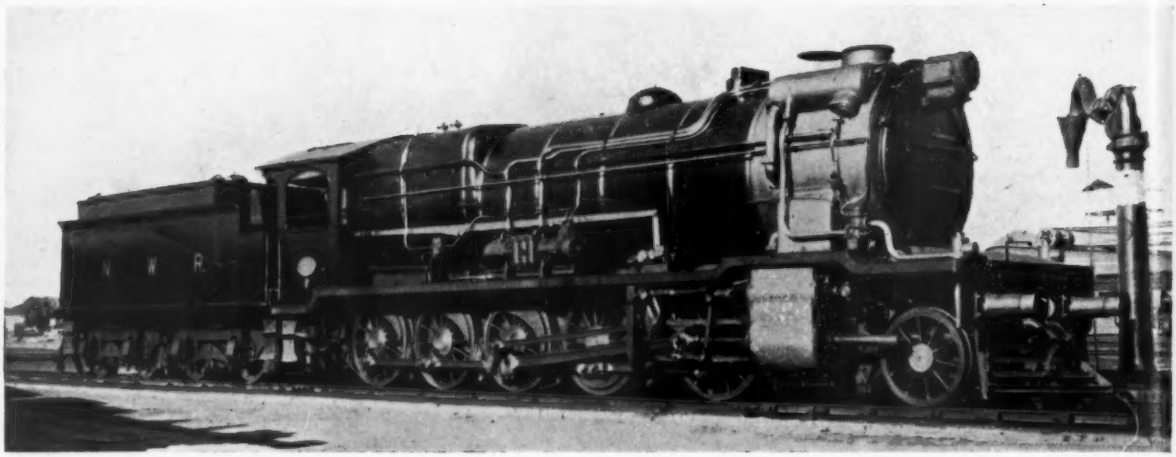
The accompanying drawing (by courtesy of the *N.W.R. Magazine*) shows the arrangement of the stoker. The engine that drives the conveyor takes saturated steam from the back plate of the boiler. Condensate in the cylinders is blown off automatically. Coal from the tender falls through an opening in the bottom of the bunker into the crusher *a*, where the larger pieces are broken up and then conveyed forward by the conveyor screws *b* and *c*, to the distributing table. Ball-and-socket joints and a telescopic coupling give the necessary flexibility between engine and tender. The fireman controls the quantity of coal entering the crusher by opening or closing the sliding plates that cover the opening in the bottom of the tender. If too much coal enters the conveyor it is likely to cause a jam; should this happen, the fireman reverses the stoker engine and frees the conveyor. The stoker engine operates at pressures between 5 and 25 lb. per sq. in. A reducing valve prevents the pressure exceeding the upper limit. Pressure gauges show the pressure of steam entering the stoker engine and the jets. In the latter, the pressure varies between 10 lb. and 25 lb. per sq. in. All gears operate in oil baths; oil feeds are provided for the universal joints of the driving shaft between the engine and the gears on the tender conveyor. Oil enters



Above: Sectional elevation and plan of mechanical stoker and firedoor showing action of conveyor and steam jets



Left: Mechanical stoker assembled in workshop. The timber box represents the firebox on the locomotive



"N" class 4-cylinder 2-10-0 locomotive, North Western Railway of India

the stoker engine cylinders by a one-feed hydrostatic lubricator, delivering direct into the steam inlet.

The stoker is used only when the engine is at work. Lighting-up in the shed is done in the usual manner, and the fire is hand-stoked until it is in a good condition. Care has to be exercised to see that the fire is heavy enough to withstand the high draught developed when the train is started; othewise there is a danger of losing the entire fire.

The fitting of the mechanical stoker involved enlarging the firehole. This was accomplished by altering the existing fire-hole and back-casing plates, and fitting a larger fire-hole ring. The tender was adapted to accommodate the coal conveyor trough and the stoker engine. Locomotive No. 15, the first of the "N" class to be fitted with a mechanical stoker, underwent extensive trials in June, 1942. After certain modifications to the rocking-grate had been carried out, the trials proved entirely satisfactory, and the conversion of the remaining engines of this class is now well advanced.

One of the many excellent railway views reproduced in "Facts about British Railways in Wartime," which was reviewed in our June 4 issue

RAILWAY NEWS SECTION

PERSONAL

Mr. H. H. Grindley, who is a Director & General Manager of the Central Uruguay Railway Co. of Monte Video Ltd., has been appointed Managing Director of the Midland, Northern, and North Western Railway Companies of Uruguay.

Mr. G. W. Teague has retired from the position of General Manager of these railways, and Mr. W. J. Bradbury, in addition to his duties as Accountant, has been appointed Acting General Manager. Mr. Teague has resigned also his Directorships of the three companies.

Crown Agents for the Colonies

It is announced by the Colonial Office that Sir Hugh Thornton, Senior Crown Agent for the Colonies, will retire on October 1, when Mr. J. A. Calder, Second Crown Agent (at present seconded to the Ministry of Supply), will be appointed Senior Crown Agent, and Mr. H. F. Downie, Third Crown Agent, will become Second Crown Agent, in which capacity he has been acting during Mr. Calder's absence.

Major C. Roy Turner, General Manager, Gold Coast Government Railway (previously Chief Mechanical Engineer), who is visiting England, arrived here recently.

We regret to record the death of Mr. W. H. Lock, whose appointment as Ministry of War Transport representative in Canada was recorded in our June 18 issue. Mr. Lock was travelling in the aircraft in which, due to its crash shortly after leaving Gibraltar on July 4, General Sikorski, Polish Prime Minister & Commander-in-Chief, also lost his life.

Sir Charles Bressey has completed his tour in Spain, during which he has been lecturing to town-planning authorities. His visit was made at the invitation of the Spanish Government.

We regret to record the death, at the age of 61, of the Hon. Dr. R. J. Manion, M.C., who was Minister for Railways, Dominion of Canada, from 1930 to 1935.

The late Sir Howard Denning, who was a Director of the East Indian Railway Company, left £11,870.

Canadian Passenger Association

Mr. J. A. Brass, General Secretary of the Railway Association of Canada, has been elected Chairman, Eastern Lines, Canadian Passenger Association, in succession to Mr. C. P. Riddell. Mr. J. C. O'Brien, Secretary of the association, has become Vice-President of the Canadian Passenger Association. Mr. Riddell relinquished the General Secretaryship of the Railway Association of Canada, which he had held since 1920, last October.

Mr. R. H. W. Bruce, who, as recorded in our July 2 issue, has been appointed Manager of the Northern Counties Committee, L.M.S.R., was born in 1907, and was educated at Rugby and at Balliol College, Oxford. He entered the service of the L.M.S.R. as a probationer in 1930; a year later he was transferred to the Chief Commercial and Chief Operating Managers' Departments as a traffic apprentice, and received special training in various branches of the work of the departments. He subsequently was engaged on special duties in the Executive Investigation Office at Euston, returning in 1933 to continue training in the Chief Commercial and Chief Operating Managers' Departments; after serving on the staff of the Divisional Superintendent of Operation, Crewe, he was appointed, in 1934, Assistant District Controller, Huddersfield. Subsequently he held similar appointments at Bletchley, Birmingham, Liverpool (Lime Street), and Saltley, before becoming District Controller, Lancaster, in September, 1940. In June, 1941, Mr. Bruce was released from his railway duties to take up a temporary position with the Ministry of Economic Warfare, which he now vacates to take up the position of Manager of the Northern Counties Committee, Belfast.

Mr. R. H. W. Bruce

Appointed Manager, Northern Counties Committee, L.M.S.R.

At a meeting of the National Council for the Omnibus Industry held on July 5, Mr. F. Coyle, National Officer, Passenger Services Group, Transport & General Workers' Union, was elected Chairman of the council for the ensuing year. Mr. J. S. Wills, an Executive Director, British Electric Traction Co. Ltd., was elected Vice-Chairman of the council; Mr. Wills is also Chairman of the Conference of Omnibus Companies. Mr. Eric D. Croft, M.A., B.Sc., Secretary to the Public Transport Association, was appointed Joint Secretary (Employers' Side); Mr. Croft was recently appointed Secretary to the Conference of Omnibus Companies.

Mr. J. S. Wills, who is an Executive Director of the British Electric Traction Co. Ltd., and a Director of B.E.T. Omnibus Services Limited, has been elected to the boards of the North Western Road Car Co. Ltd. and of Omnibus Stations Limited, in the place of Mr. P. R. Blake, who has resigned.

Indian Railway Staff Changes

Mr. T. M. Robinson has been appointed to officiate as Deputy Chief Mechanical Engineer, N.W.R., as from July 2.

Mr. R. Ramaswami Ayyar has been appointed to officiate as Financial Adviser & Chief Accounts Officer, N.W.R., as from August 6.

We regret to record the death on July 3, in his 62nd year, of Mr. W. H. Liley, who was Signal & Interlocking Engineer (later Deputy Chief Engineer, Signals), G.I.P.R., from 1917 to 1935.

Captain J. W. Harris, R.N.R., Chief Marine Superintendent, L.M.S.R., 1931-37, and Marine Manager since 1937, is retiring from the company's service at the end of this month.

Major H. L. Wilkinson, son of Mr. H. L. Wilkinson, Superintendent of the Line, G.W.R., 1933-36, was appointed recently Deputy Assistant Quartermaster-General (Movement) on the headquarters staff of the M.E.F. Before being commissioned in the Royal Engineers, Major Wilkinson was employed in the Operating Section of the London Divisional Superintendent's Office, Paddington.

Mr. J. Lorimer, Chief Assistant to the Passenger Manager, Scottish Area, L.N.E.R., who has been appointed Assistant Passenger Manager, Scottish Area, commenced his railway career in the St. Andrews Goods Department of the North British Railway. Later he was transferred to the Passenger Department, and served at Innerleithen, and Galashiels, and in the Parcels Department at Edinburgh (Waverley). In February, 1911, he was appointed to the Superintendent of the Line's office, in which he continued to serve when the L.N.E.R. came into being on amalgamation in 1923. Mr. Lorimer was promoted to the position of Chief of the General Section of the Passenger Manager's Office in Sep-

Photo] [Lafayette

Mr. J. Lorimer

Appointed Assistant Passenger Manager, Scottish Area, L.N.E.R.

tember, 1929, and became Chief Assistant to the Passenger Manager, Southern Scottish Area, in May, 1932.

Mr. Lawford H. Fry, Railway Engineer, Edgewater Steel Company, of Pittsburgh, has resigned from that position to become Director of Research of the Locomotive Institute, New York City. Mr. Fry served in the shops of the Baldwin Locomotive Works from 1897 to 1899; he was Sales Engineer in 1904, and Engineer of Tests in 1905. He then became European Technical Representative of the company. He returned to the United States in 1913 to become head of the Metallurgical Department of the Standard Steel Works, Burnham, and remained there as Metallurgical Engineer until 1930. Mr. Fry is a member of the executive committee of the American Society for Testing Materials, and is a member of the following institutions: Institution of Civil Engineers; Institution of Locomotive Engineers; and Institution of Mechanical Engineers, from which he received in 1928 the T. Bernard Hall Prize for his paper, "Experiments with the Three-Cylinder Compound Locomotive." He is a Fellow of the American Society of Mechanical Engineers. Mr. Fry is the author of a book entitled "A Study of the Locomotive Boiler," and has contributed a number of articles on locomotive and on metallurgical subjects to the English and American technical press.

L.M.S.R. Appointments

The L.M.S.R. announces the following appointments:—

Mr. J. E. Rigby, Assistant to District Goods Manager, Manchester, to be Assistant District Goods Manager, Bolton, *vice* Mr. W. J. Molyneux, retiring.

Mr. T. E. Jackson, Goods Agent, Oldham Road & Beswick, to be Assistant to District Goods Manager, Manchester.

Mr. G. E. Curtis, Joint Goods Agent, Keighley (L.M.S.R. & L.N.E.R.), to be Goods Agent, Oldham Road & Beswick.

Mr. T. E. Verity, Chief Accounts Clerk, District Goods Manager's Office, Leeds, to be Joint Goods Agent, Keighley (L.M.S.R. & L.N.E.R.).

Mr. F. W. Goring, Senior Passenger Trains Clerk, Superintendent's Office (Western Section), Southern Area, L.N.E.R., who, as recorded in our May 28 issue, has been appointed Stationmaster, Kings Cross, entered the service of the former Great Northern Railway in 1907 as a junior clerk in the Parcels Office of the station of which he is now in charge. His early railway experience was obtained in the Operating and Goods

Mr. F. W. Goring

Appointed Stationmaster, Kings Cross, L.N.E.R.

Departments, and in 1915 he was appointed Relief Stationmaster for the London District, in which capacity he obtained a detailed knowledge of the stations between London and Peterborough. After serving as Stationmaster at Finchley (Church End), he took charge of the passenger-train working arrangements in the Kings Cross District, and subsequently became Senior Passenger Trains Clerk for the Western Section of the Southern Area. His knowledge of passenger-train arrangements was recognised when he was nominated to serve on the special committee, set up under the Chairmanship of the late Mr. Frank Pick, to deal with the evacuation of London school-children at the outbreak of war.

G.W.R. 2-6-0 mixed-traffic locomotive No. 8314—the victim of an air raid

TRANSPORT SERVICES AND THE WAR—198

Conductors on Single-Deck Buses

Regulation 16 of the Public Service Vehicles (Equipment & Use) Regulations, 1941, provides that the power of the Regional Transport Commissioners to certify that a conductor is not required on a single-deck vehicle on a particular service or in particular circumstances, is confined to single-deck vehicles the seating capacity of which does not exceed 26. The Minister of War Transport announced on July 7 that he proposes, after the expiry of forty days, to amend the Regulation to extend the discretion already given to Regional Transport Commissioners to cover all single-deck vehicles. It is hoped that this will lead to some economy in manpower.

Manchester District Signalwomen

So successful has been the L.N.E.R. District Superintendent in the Manchester Area in recruiting and training women for signalling work that 24 are now working signal boxes in the area, nine others have passed examinations in signalling duties and are awaiting appointment to boxes, and one is at present being trained. The latest recruit is 46-year-old Mrs. Madeline Parkes, believed to be the only railway signalwoman of the last war who has again taken over the same work in the present conflict. Her experience at Ardwick No. 2 box from May, 1917, to December, 1918, helped her to pass once again the official examination in block telegraph rules and regulations.

Gas-Producer Vehicle Stops

Regulation 82 (3) of the Motor Vehicles (Construction & Use) Regulations, 1941, provides that a motor vehicle may not be left unattended unless the engine is stopped. It is, however, often desirable that the engines of vehicles using producer gas and engaged on work involving frequent short stops should be kept running, in order to maintain the gas supply and to enable the vehicle to move off without the use of petrol and without delay. On the other hand, the driver must be able to leave the vehicle to effect deliveries or for other reasons.

The Minister of War Transport, therefore, proposes to amend the above Regulation to permit a motor vehicle propelled by producer gas to be left unattended without the engine having been stopped. To reduce the risk of accidents, the Minister wishes to impress on operators of producer-gas vehicles the necessity of ensuring that the hand brakes of these vehicles are maintained in a fully effective state, and he will instruct his vehicle examiners to pay special attention to this matter. The attention of users is drawn to the fact that, if they wish to take advantage of this concession, they must make provision (*e.g.*, by the use of a locking device on the steering-wheel or on a road wheel) to enable them to comply with the Ministry of Home Security Order as to immobilisation in those areas where it still applies.

" Invasion " Transport

The German anti-invasion scheme is reported to include the maintenance of reserves and supplies concentrated far in the rear so that they can be brought up only when it is certain where a major landing is being attempted. This postulates a smoothly working transport system to get those reserves to the battle zone on schedule, and the efforts of the R.A.F., together with the radio instruction to friends inside Europe to disorganise transport at " zero hour," are obviously designed to make any such schedule impossible of achievement.

Heretofore, the Reichsbahn has never failed the German military machine—as we have emphasised repeatedly, despite " inspired " stories of imminent collapse—and a Swedish transport authority recently remarked : " Nobody will deny that Dr. Dorpmüller, the German Minister of Transport, has accomplished miracles in satisfying the needs of the German Armies in the past three and a half years." This authority continued, however : " Informed observers now consider that even the gigantic efforts now being made by the German State Railway will be insufficient in the case of invasion, provided the Allies win and maintain undisputed mastery of the air, and that Russia strikes at the same moment in the East."

French Railways and " Zero Hour "

French railwaymen were told in a broadcast from London on June 24 that, when the Allied invasion of Europe begins, they should destroy their locomotives and disorganise the railway system. The message, from the Organisation of French Resistance in France, was broadcast by the B.B.C. in all European languages. It was preceded by a warning that the suggested action should be put into effect " only on the appointed day at zero hour." The announcer said : " Men of the railways, in the months to come the destiny of France will be decided, the last phases of the battle will be fought out on the Continent ; we cannot stand aside. Of all Frenchmen, you, the railwaymen, are those who in their hands possess the most powerful weapon for defeating the enemy. Tomorrow the country expects a still greater sacrifice from you. You will have to destroy the machines which are your pride, make useless the electric dynamos, bottle up traffic in the sidings, and disorganise the whole system. No train must run to time. In silence prepare yourselves for this mission of liberation and the total sum of your individual deeds will mean victory. The 800,000 railwaymen of France, on the appointed day, can forbid to the Germans the carrying out of their strategy. You alone can bring his troop movements to a standstill, isolate his units, immobilise his munitions, and smash, with one blow, his power, and bring about his downfall." It was emphasised that the message did not modify any instructions already received by the railwaymen from Allied sources.

War Wounded for German Railways

According to a message from Stockholm, dated June 25, the Reichsbahn has announced that it will absorb a considerable number of war wounded into its employment. The men will be given special training courses. The German railways are stated to be in particular need of such men for operating jobs.

Dutch Buses Barred to the Young

Further restriction on services being apparently impossible, a rule that persons between 14 and 20 years of age are not allowed to use buses and trams has been enforced in most towns in Holland ; this measure eases the peak-hour traffic strain.

No Dutch Commercial Travellers

A measure to reduce passenger traffic still further has been the abolition of all-station season tickets on the Netherlands Railways. Commercial travellers were great users of these tickets, but, as is officially stated that free trading has ceased entirely, the need for commercial travellers has disappeared.

Universal Fare in Moscow

To save time and labour in fare collection, the Moscow trams have adopted the universal fare, irrespective of distance. The Moscow Underground has always had the one fare system. Differential fares are still used on the trolleybuses.

R.A.F. Attacks during June

During June the R.A.F. continued its series of regular attacks on Axis transport in Western Europe ; about 150 trains were attacked, and 120 locomotives put out of action. In addition, large numbers of petrol wagons, signal boxes, barges, and tugs were also damaged more or less seriously. In these attacks, June 30 was an outstanding date. On that day, more

L.N.E.R. Signalwoman Mrs. Parkes, a veteran of the last war, in Fairfield Junction box ; the electro-pneumatic operation will be noted (See paragraph above)

than 20 locomotives were attacked and damaged by Mustangs, Typhoons, and Spitfires of Fighter Command operating over Northern France. Two Mustangs of a Canadian Squadron attacked 14 locomotives, and Mustangs of another Canadian Squadron attacked 5 more, in addition to a tug, several electric pylons, one electrical power sub-station, and several railway sheds.

Railway centres were bombed at St. Omer and Eu, in Northern France, and the Orleans marshalling yards in Central France. The Bomber Command attack on the Schneider Works at Le Creusot on June 19/20 was a severe blow to the Axis-controlled locomotive shops, as photographic interpretation showed that the works had suffered considerable damage. Injury to the Axis railway system is also caused by air attacks on vital centres of the electrified railways. There is evidence that considerable damage has been caused recently in France at St. Pierre-des-Corps near Tours, and in Germany at Munich and Stuttgart. In each case the railway system is mainly electrified and uses overhead power transmission.

Fuel Situation in Eire

The Great Northern Railway Company (Ireland) has issued a public notice pointing out that the fuel position is still serious, and in consequence there is no improvement in the road and rail services to the seaside. The Sunday rail services are operated by railcars, and, as they afford sufficient accommodation only for persons who must of necessity travel on Sundays, travelling for mere pleasure should be avoided.

Mexicans on American Railways

As a result of the completion of an agreement between the Mexican Foreign Ministry and the U.S.A. State Department for the import of 6,000 Mexicans to undertake permanent way work on American railways (to which we made brief reference at page 518 of our May 21 issue), the first consignment of 750 men reached Nogales, Arizona, from Mexico City during the second week in May for service on the Southern Pacific Railway. Further Mexicans joined the Atchison, Topeka & Santa Fe Railway at El Paso, Texas, on May 16. Actual recruiting of the Mexican workers, their transport from Mexico to points in the United States, and other details relative to the undertaking, are being handled by the U.S.A. War Manpower Commission and its subsidiary organisation, the United States Employment Service, as well as the Railroad Retirement Board. Many of the details of the plan, to alleviate the decreasing manpower situation of the railways, will follow closely those of a similar plan evolved sometime ago to ease a shortage of workers in agriculture. According to officials of the Railroad Retirement Board, workers imported from Mexico under the existing agreement will be assigned to south-western and Pacific Coast railways for working periods of six months' duration, at an hourly wage of 46 cents.

Links with Alaska Highway

The British Columbian Government has appropriated $6,000,000 for the construction as soon as possible of a highway connecting the provincial road system with the Alaska military highway. Five possible routes are under consideration, all beginning at Prince George; two would join the Alaska highway at Fort St. John and three at Dawson Creek. The ultimate aim of the Government is to connect the British Columbia highway with the Alaska highway at Watson Lake, on the Yukon-British Columbia boundary, but it is believed that the immediate connection at Fort St. John should not wait until after the war, because "by that time the routes of travel will be set, and there will be enormous traffic to Alaska and Yukon." The Prince George to Watson Lake route is that which has been suggested for an eventual railway link between Prince George and Fairbanks (Alaska). Most of one of the proposed roads to Fort St. John would be, in effect, the first portion of the ultimate road to Watson Lake. The position is clearly seen by reference to the map in our December 11, 1942, issue (page 587). The name "Alcan" has now been abandoned, according to a Canadian broadcast, and "Alaska Military Highway" is the official title.

Diesel railcar outside Cologne Station in an impressive setting, with the famous twin spires of Cologne Cathedral as a prominent background. Although Cologne has been raided by the R.A.F. on a large number of occasions, accurate marksmanship has left the Cathedral unharmed until recently. It has been reported from Germany that this famous Dom has now received heavy damage, which was not improbable in view of its close proximity to the Hauptbahnhof, as indicated by this view, but reconnaissance photographs have shown the reports to be false, and the external damage to be confined to the north transept

Further Canadian Restrictions

The Dominion Government, through the Office of the Transit Controller, issued an instruction on May 22 banning all carnival companies and circuses from using the Canadian railways for the duration of the war, because of the need for rolling stock for essential movements. The Labour Department has applied the manpower draft call-up to men of 19 to 40 years of age employed by carnivals, transferring them to essential farm employment.

Canadian War Traffics

The Canadian Department of Defence expenditures on passenger, freight, express, and meals, during the past financial year were divided almost evenly between the Canadian National and Canadian Pacific Railways. The amounts were as follow: C.N.R. $12,384,000; C.P.R. $11,710,000.

The Trans-Canada Highway

According to a C.B.C. broadcast, the last stretch of the Trans-Canada Highway, namely, the section between Geraldton and Hearst, in north-west Ontario, is now in use. The work was completed

(*Continued on page* 73)

C.P.R. Post-War Plans

Subject to the assurance that post-war conditions will give reasonable freedom and encouragement to private enterprise, the Canadian Pacific Railway Company is planning maintenance, improvement, and expansion schemes that will create, directly and indirectly, an amount of employment comparable with that at present maintained by the company's operations. That the company had already taken steps toward this end was recently announced to the Canadian House of Commons committee on reconstruction, on behalf of the company, by Mr. W. M. Neal, Vice-President.

He reported that a committee of senior officers of the company had been established, with instructions to draft plans for the improvement of the company's facilities. These plans were based on the assumption that when victory had been won, full employment and a general condition of reasonable prosperity would become the normal and continuing economic situation in Canada.

Mr. Neal did not go into details as to the plans contemplated to maintain and extend the company's position in the post-war years, but in a general way he foreshadowed undertakings to expand the company's activities in the fields of railway operation, coastal, and possibly ocean shipping, air transport, and road transport.

As to railway operations, Mr. Neal reported that activities under consideration by the C.P.R. post-war committee included large-scale special maintenance projects, improvement of tracks and bridges, construction of lines, and erection or improvement of shops, engine-houses, freight sheds, passenger stations, and fuel and water plants. In addition, locomotives, rolling stock, signal apparatus, aircraft, steamships, radio, and other transmission equipment would have to be purchased.

Mr. Neal emphasised that the interests of the company and the country as a whole were closely interlocked, in that the company was created to aid the development of the nation, so that the prosperity of the company depended largely on the progress and prosperity of the country.

Mr. Neal pointed out that because of economies necessitated by the depression, and due to the shortage of manpower and materials during the war, the company for some years past had had to curtail extensions, purchase of new equipment, full maintenance programmes, and so on. At present equipment was being operated so close to the limit of its capacity that there was little margin with which to handle possible future traffic, unless it proved possible for the government to release the labour and material required for some immediate additions and those required from time to time.

The company expected to pay for maintenance plans out of reserve funds and earnings, but hoped that conditions of confidence and freedom of enterprise would be such as to encourage investors to provide at least part of the funds required for capital improvement projects. In this connection it was pointed out that the return on the company's railway investment had risen to 3·9 per cent. under the stimulus of war conditions, and that should earnings be maintained at or about this level the railway industry would again be able to obtain new capital. Closer regulation of road transport was urged in the interest of stabilisation of transport generally after the war.

Permanent Way Institution

The annual summer general meeting of the Permanent Way Institution was held at the London Transport offices, Westminster, London, S.W., on Saturday, July 3, with the President, Mr. V. A. M. Robertson, C.B.E., M.C., in the chair. Some 120 members were present, including three past presidents, Messrs. R. Carpmael, F. E. Harrison, and W. K. Wallace.

The Secretary (Mr. H. Janes) reported that during the first half-year of 1943 a considerable improvement had taken place in respect of section activities, and fourteen home sections were holding meetings at varying intervals. Much encouragement had been given to this phase of the work of the institution by visits by the President, who had already attended meetings of the following sections, Ashford, Brighton, Croydon, Guildford, London, Manchester & Liverpool, and Southampton. With regard to the sections in India and Sudan, unsettled conditions had made it impossible to hold meetings recently, but it was hoped to recommence shortly. So far as the Malaya Section was concerned, nothing had been heard from that area since the Japanese invasion until recently when an airgraph was received from an Associate-Fellow of the section, now in Ceylon, giving the information that, apart from himself and two others, all members of the section were in enemy hands. Since the last summer meeting a new section had been formed at Croydon.

During the past six months the improvement in section activities was reflected in the increased number of applications for membership, and 284 members had been elected. Seventeen sections were represented; 53 of these applicants were from India, and from home railways the figures were S.R. 93, L.M.S.R. 76, L.N.E.R. 26, G.W.R. 25, London Transport 5. The number of members who were or had been serving with H.M. Forces totalled 187.

The work of compiling the text book "British Railway Track—Design, Construction, and Maintenance" had been completed, and it was expected that publication would take place about the end of October.

The Treasurer (Mr. F. Lawson) gave particulars of the finances and reported an approximate surplus of £400 on the year's working, and the cash balance at July 1 amounted to £3,282, compared with £2,668 a year ago. The council had that morning decided to purchase a further £200 of 3 per cent. Defence Bonds. From the financial viewpoint the future could be contemplated with confidence, and with high hopes that in 1944, the institution's diamond jubilee year, the good progress made in the past decade would be more than maintained.

Mr. Robertson, commenting on the reports, said he had two brief remarks on the position in which they found themselves at the end of the fourth year of the war. There must have been some doubt in the minds of the President and Council whether the institution could be carried on, and the thanks of the members were due to Mr. F. E. Harrison for the way in which he conducted the

Lt.-Colonel D. C. Unwin Simson, representing the High Commissioner for Canada, speaking at West London Carriage Sidings on June 1, when he presented a mobile trailer-kitchen for use at that depot, given by citizens of Guelph & Wellington County, Ontario, through the "Guelph Daily Mercury" Fund. In the background can be seen the locomotive "King George VI" bearing the flags of Great Britain and Canada, and, on the right, part of the guard-of-honour formed by a contingent of the G.W.R. Home Guard, from the 38th County of London Battalion. A brief account of the presentation appeared in our June 11 issue

affairs of the institution during the past four years. Then, next year was their diamond jubilee. He suggested that they should be thinking between now and the end of the war how best they could celebrate the jubilee which he trusted would be co-incident with the cessation of hostilities.

The statement of accounts and balance sheet for 1942 were then submitted for approval, and, after various items had been explained by the Treasurer, they were adopted.

The following resolution recommended by council was put to the meeting and unanimously agreed: That the following clause be added to Article 40 of the Articles of Association—"Members of the several grades who, having paid at least 10 years' annual subscription, shall, on notification of retirement from railway service or actual business by reason of age or ill-health, be allowed to retain their membership at half the usual fee."

It was decided that the winter general meeting should take place in London on Saturday, January 29, 1944.

At the invitation of the President, the members then proceeded to visit the London Passenger Transport Board's main depot of the Permanent Way Department. After inspection of the welding shop, crossing makers' shop, machine shop, and signal department's test shop, the party was provided with tea. Mr. C. E. Sherrington, M.C., expressed the thanks of those present to Mr. Robertson, Engineer-in-Chief, and Mr. Green, Chief Engineer (Civil), for the excellent arrangements and hospitality.

Parliamentary Notes

Grand Union Canal Bill

The Grand Union Canal Bill received the Royal Assent in the House of Lords on July 6.

Questions in Parliament

Railway Staff War Bonus

Sir Ernest Graham-Little (London University—Ind.) on July 6 asked the Parliamentary Secretary to the Ministry of War Transport what war bonus, in the last few weeks, had been granted to civil servants whose salaries ranged between £500 and £850 a year; and whether he would take steps to obtain the same treatment for the senior staffs of the British railways who, so far, had had no advance in remuneration to meet increased costs due to the war.

Mr. P. J. Noel-Baker (Parliamentary Secretary, Ministry of War Transport), stated in a written answer: As stated in the official announcement issued by the Treasury, which appeared in the press on June 9, a war bonus at the rate of £25 a year has been granted to non-industrial male civil servants whose salaries range between £500 and £850 a year. Sir Ernest Graham-Little, no doubt, will have seen the announcement in the press on July 3, that a war advance equivalent to that paid to the lower grades of the railway staffs is being extended to the special class staff of the railways on salaries up to £1,000 a year.

Travel Facilities for Services

Mr. R. De La Bere (Evesham—C.) on July 6 asked the Parliamentary Secretary to the Ministry of War Transport whether, in connection with the three services who might be on East Coast stations and who were returning from leave, he would consider making arrangements to run midnight trains so as to relieve congestion and enable them to get some seating accommodation; and if he would confer with the appropriate heads of the service departments with a view to ascertaining the urgency of this matter.

Mr. Noel-Baker wrote in reply: If Mr. De La Bere will give me particulars of the routes and services he has in mind, I will make enquiries.

Railway Workers' Canteens

Mr. A. Woodburn (Clackmannan and Eastern—Lab.) on July 7 asked the Parliamentary Secretary to the Ministry of War Transport, whether he was aware of the disadvantages suffered by locomotive and other railwaymen by the absence of canteen facilities at main depots, such as St. Margarets, Edinburgh, King's Cross, &c., and whether he would take steps immediately to have this service brought into line with other necessary war work.

Mr. Noel-Baker stated in a written answer: I am aware that railwaymen want more canteens than it has been possible to provide. A large number of canteens, however, are already in operation; more are now under construction; and plans are being prepared for a much larger number still. They are being built under a system of priorities which depends on the supplies of labour and material which are available. The priority allotted to different places is decided by the railway companies in consultation with the railwaymen's trade unions.

Transport of Hop Pickers to Kent

Mr. W. Thorne (Plaistow—Lab.) on July 7 asked the Parliamentary Secretary to the Ministry of War Transport, what arrangements were being made to take the men, women and children down to the hopfields in Kent in August, in view of the bad transport and the overcrowding at London Bridge Station last year.

Mr. Noel-Baker: Last year arrangements were made by the National Farmers Union and the Southern Railway Company for the transport of hop-pickers to Kent by special trains. Most of the hop-pickers, in fact, travelled by these special trains, on which there was no over-crowding. Similar arrangements are being made this year, and I hope that, if adequate notice is given of the number of passengers who intend to travel, no difficulty will arise.

Shunting Accidents

Mr. W. Thorne (Plaistow—Lab.) on July 7 asked the Parliamentary Secretary to the Ministry of War Transport if he was aware that on account of bad lighting at two shunting places, of which he had been informed, a number of shunting accidents had taken place; and what he intended doing about the matter.

Mr. Noel-Baker: I have made enquiries, and I understand that there has been only one slight accident this year at one of the places referred to by Mr. Thorne; and that there have been no accidents at all at the other. At both places, the lighting is of the standard permitted in this area.

Organisation of Post-War Transport

Mr. William Brown (Rugby—Ind.) on July 7 asked the Parliamentary Secretary to the Ministry of War Transport (1) when he contemplated being able to make a statement on the post-war policy of his department in respect of docks and ports; and (2) when he anticipated being able to make a statement on the policy of his department in regard to the organisation of post-war transport.

Mr. Noel-Baker: The Minister of War Transport is actively considering the many complex problems involved in the post-war organisation of transport, and of docks and ports, but he has not yet reached the stage at which he can submit definite proposals to his colleagues in the Government.

Mr. Brown: In view of the fact that decisions on recent points created the impression that they were a necessary preliminary to decisions in a number of wider fields, can the Minister give us any indication when he will be likely to make a statement?

Mr. Noel-Baker: I am afraid I could not mention a date, but I should like to assure Mr. Brown that the Minister of War Transport is fully alive to the importance of the matter and that a great deal of the preparatory work has been done. The Minister of War Transport is, of course, very busy operating the transport system for the war effort.

Mr. E. Shinwell (Seaham—Lab.): Are the plans being prepared in consultation with the Minister without Portfolio, or is this being done in isolation?

Mr. Noel-Baker: There is, of course, consultation with the Minister without Portfolio.

Mr. Shinwell: What is the function then of the Minister without Portfolio in reconstruction matters?

Mr. Noel-Baker: I say that we are in consultation.

Post-War Road Development

Mr. A. C. Bossom (Maidstone—C.) on July 7 asked the Parliamentary Secretary to the Ministry of War Transport whether he could make a statement on his Ministry's proposals for post-war road development; what decisions had been made; and when would they be presented for consideration to the House.

Mr. Noel-Baker: My Ministry has prepared plans for a large number of road improvements, which can be carried out when conditions permit. But I am not yet able to make any statement about the general policy of the Government as to post-war road development, nor about the specific proposals which the Government has in view. Nor can I now foretell when it will be necessary to ask for whatever statutory powers may be required.

Mr. Bossom: Will not the Parliamentary Secretary endeavour to expedite this information, because the lack of it is holding up development of many large housing proposals?

Mr. Noel-Baker: Yes, sir. We have done a lot of work, and we are anxious to get on.

Mr. Bossom: Would the Parliamentary Secretary consider publishing that information as soon as possible, as it is most desirable that it be known

Mr. Noel-Baker: I do not think that we have yet reached a stage where we could usefully publish anything, as we might do more harm than good.

Ministry of Transport Staff

Captain J. F. E. Crowder (Finchley—C.) on July 6 asked the Parliamentary Secretary to the Ministry of War Transport, what was the present staff in the department dealing with alternative motor fuels.

Mr. Noel-Baker stated in a written answer: The staff which deals with alternative motor fuels consists of the Director, two Staff Officers, four Technical Officers, and seventeen technical and clerical assistants.

Regional Transport Commissioners

Captain J. F. E. Crowder (Finchley—C.) on July 6 asked the Parliamentary Secretary to the Ministry of War Transport if he would give the names of the regional transport commissioners in Great Britain;

and how many were part-time or full-time officials.

Mr. Noel-Baker wrote in reply: The Regional Transport Commissioners in Great Britain are :—

Region	Name
Northern	Sir John Maxwell, C.M.G.
North Eastern ...	Mr. F. S. Eastwood.
North Midland ...	Mr. J. H. Stirk, M.Inst.T., J.P.
Eastern	Sir Alfred Faulkner, C.B., C.B.E.
London	Mr. Gleeson E. Robinson, M.C., LL.B.
Southern	Sir Henry Piggott, C.B., C.B.E.
South Western ...	Sir Alfred Robinson, K.B.E., C.B., M.Inst.T.
Wales	Mr. H. Trevor Morgan, M.C., K.C. J.P.
Midland	Sir Arnold Muste, C.I.E., M.Inst.C.E.
North Western ...	Sir William Chamberlain, M.Inst.T.
Scotland	Mr. Archibald Henderson.
South Eastern ...	Lt.-Colonel F. Gordon Tucker, C.B.E., T.D.

All these are full-time appointments; but for the time being the Regional Transport Commissioner for the Eastern Region continues to act, in addition, as Director of Alternative Motor Fuels.

Nigerian Railway Employee

Mr. A. Creech Jones (Shipley—Lab.) on July 1 asked the Secretary of State for the Colonies, whether he had any information as to the detention in Nigeria of Imondu, a former railway employee and president of the Nigeria Railway Workers' Union; and why restrictions had been placed on his movements.

Colonel Oliver Stanley (Secretary of State for the Colonies) in a written answer, stated: The person mentioned was detained by the Governor on January 23 under the Defence Regulations, but on February 12 the Detention Order was replaced by an Order, also made under the Defence Regulations, restricting his movements to certain areas of his native province. The reason for this action was that he had been concerned in a deliberate attempt to bring about a misunderstanding between the employees and the management, with a view to producing a stoppage of work in the essential service of the railway, which forms a vital link in Nigeria's war effort.

Staff and Labour Matters

War Wages of Road Passenger Transport Workers

Applications were recently submitted on behalf of the Transport & General Workers Union, the National Union of Railwaymen, and the National Union of General & Municipal Workers, for increases in war wages and changes in conditions of service of road passenger workers employed by the London Passenger Transport Board, the municipal undertakings, and the provincial bus companies in England and Wales.

After discussions within the appropriate industrial negotiating machinery, joint discussions between the representatives of all the parties have resulted in a common settlement of the claims, subject to ratification by Trades Unions' Conferences. The decision relates to employees in the operative, maintenance, and other grades of labour previously covered by transport awards or decisions, and will, if ratified, take effect from the beginning of the first full pay period in July.

Provision is made for an increase in the war wage of 4s. 6d. a week for adults, calculated on the hourly rate of pay, with agreed increases to other staff concerned, and is in settlement of the applications of the unions for alterations in wages and improvements in conditions of service.

French National Railways Traffic

Figures published recently by Société Nationale des Chemins de fer Français afford a comprehensive indication of the decrease in railway goods traffic during the war years. Some details in this connection were published in an editorial note in our May 14 issue. The particulars given in the table below indicate that the decline has varied considerably by regions and that, on the whole, goods traffic as expressed in daily wagons loads was, by the end of 1942, only about two-thirds of what it had been at the end of 1938.

Daily average of full wagon loads

Regions	1938	1941	1942
Northern	8,888	6,108	5,633
Western	6,275	4,829	3,862
Eastern	5,083	3,239	3,001
South-Western ...	7,056	5,946	5,087
South-Eastern ...	9,293	8,778	7,552
Total	36,595	28,900	25,135

On the other hand, goods traffic receipts rose by about 16 per cent. between 1938 and 1942; although, due to a seasonal decline in December of the latter year, they were about 3 per cent. lower than in 1941. Passenger receipts were nearly doubled between 1938 and 1942 and last year were more than 60 per cent. more than those of 1941; this was due to the substantial increases in passenger fares which gradually have been introduced, and which represented a total advance of 65 per cent. by the end of 1942.

TRANSPORT SERVICES AND THE WAR

(*Continued from page* 70)

last November, but the highway was not opened for public traffic during the winter months.

Part-time Workers on U.S.A. Railways

The use of part-time workers in various spheres of industry has become recognised in this country for nearly four years, and it is interesting to watch the way in which it is taking place in the United States. The absence of air raids, the quite recent introduction of rationing, and the distance from the scene of battle, must necessarily make it more difficult for the average American citizen to realise the reality of war. It is all the more remarkable that hundreds of "black-coated" workers and students should have come forward so eagerly to give their leisure to the service of the railways. The Southern Pacific Company has been suffering from a severe shortage of permanent way men, as well as having other departments depleted, and the position has grown progressively worse. Attempts to recruit coloured workers from the Southern States were unsuccessful, and in desperation an appeal was made to ordinary citizens.

The railway company pointed out the three outstanding features of this work. First, patriotism in helping an essential part of the war-machine to function; second, the opportunity it would give for healthy exercise; and, finally, the chance to earn extra money. The experiment began in the goods department, which had a deficit of 100 men in the daily handling of business. At first, the clerical staff of other departments gave week-end help, but the idea spread rapidly to outside business concerns, to the high schools, and to colleges. Clever publicity and advertising stimulated movement in cities, villages, and countryside. The most outstanding piece of work was that done on the permanent way, which had deteriorated in condition rapidly as the result of losing men to the Forces and to the factories. No special training was given, but the foremen and assistant engineers kept a watchful eye and explained and demonstrated as each item arose, whether it was surfacing track, ballasting, laying rails, installing points, or renewing sleepers. The regular men described the work as satisfactory and of great assistance in completing essential tasks.

(*See editorial note, page* 55)

Mr. K. W. C. Grand, Assistant General Manager, and Liason Officer to the Home Guard, G.W.R., inspecting the 13th Battalion Wilts Home Guard, composed of members of the company's staff during its first battalion parade, at Swindon, on June 6

Notes and News

Peruvian Railway Commission.—According to *The South American Journal*, the Peruvian Government has established a commission to make a study of the country's railway system, particularly in its relationship to industrial development.

Cost-of-Living Index.—The official cost-of-living index figure on June 1 was 98 points above the level of July, 1914, compared with 99 points on May 1 last. In June, 1938, it was 55 points, and in June, 1939, 53 points above the level of July, 1914.

H.T. Engineering Co. Ltd.—The head office of the H.T. Engineering Co. Ltd. has been moved from 28, Leinster Square, London, W.2, to 120, Bickenhall Mansions, Bickenhall Street, Baker Street, London, W.1. The telephone number of the new premises is Welbeck 5292.

"Wartime Transport."—The annual general meeting of the Scottish Section of the Institute of Transport will be held on July 21 at the North British Station Hotel, Edinburgh, when an address by Mr. R. J. M. Inglis, Divisional General Manager, Scottish Area, L.N.E.R., on "Some Observations on Wartime Transport" will be given.

Mexican Railway Construction.—It is reported that the line under construction between Mexicali, Lower California, and Santa Ana, Sonora, which was shown on the map published in our March 5 issue to be completed as far as Punto Penasco, has reached a point just short of Caborca, Sonora.

Institute of Transport Examinations.—The examinations committee of the Institute of Transport has decided that it will not be practicable for the intended changes in the subjects of the examination scheme to come into operation on October 1 next. Subject to the approval of the council, the changes will not come into effect until October 1, 1944.

Road Accidents in May, 1943.—The return issued by the Minister of War Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of May last shows 431 deaths (compared with 505 in May, 1942), 2,222 seriously injured (compared with 2,790 in May, 1942), and 6,750 slightly injured (compared with 8,398 in May, 1942).

J. Stone & Co. Ltd.—In the report for the year ended December 31, 1942, it is stated that all the works of the company have continued to be fully engaged. After providing reserve for taxation and making allowances for depreciation, etc., and further expenditure on A.R.P., the profit was £232,126 (£214,109); adding balance brought forward of £276,415, makes £508,541. Dividend on preference shares absorbed £39,000, and the directors recommend a dividend of 25 per cent. (same) on the ordinary shares for the year, leaving £319,441 to be carried forward.

Kaiser-Built Trains.—It is reported from San Francisco that Mr. Henry J. Kaiser, who has gained a world-wide reputation for his rapid construction of wartime ships, is planning to turn his attention to railways after the war. In an interview Mr. Kaiser says he is negotiating with a group of U.S.A. railway companies, and plans to build fast, lightweight trains in the yards which are now turning out ships. Some of these trains, built of new steel alloys and aluminium and magnesium, will consist of super-fast, streamline passenger coaches and "will be so light that one engine will be able to pull twice the number of cars now generally used." "Millions of shipyard workers must have jobs after the war," said Mr. Kaiser. "Our railways must also be rebuilt. My plans will do both."

New Lisbon-Madrid Express.—Reuters states that a luxury-train service is to be inaugurated on July 20, between Lisbon and Madrid, with the running of the Lusitanian Express, as the new train is to be called. It is understood that it will operate three times weekly between the two cities.

Chemins de Fer du Midi.—Income for 1942 of Compagnie des Chemins de fer du Midi totalled fr. 1,200,000, the same as for 1941. Contributions received from the Société Nationale des Chemins de fer Français amounted to fr. 11,740,000 (fr. 11,720,000 in 1941); and the statutory dividend of 1¼ per cent. was paid on the share capital of fr. 125,000,000.

Chemin de Fer du Nord.—The net profit for 1942 of Compagnie du Chemin de Fer du Nord decreased to fr. 6,000,000 from fr. 6,500,000 a year previously; and the contribution of the Société Nationale des Chemins de fer Français, totalling fr. 18,000,000, enabled the company to pay the statutory dividend of 17½ per cent. on its share capital of fr. 210,000,000.

Scottish Machine Tool Corporation Limited.—Profit for the year to March 31, 1943, was £83,689 (£83,288) and £16,574 (£23,286) was brought in, making £100,263. Income tax and E.P.T. take £67,400 (£70,000). Final dividend is 5 per cent., making 8 per cent. for the year, against 8 per cent. and a bonus of 2 per cent., and £16,863 is carried forward. The bonus for 1941-42 was paid to compensate shareholders for the lower distribution of 6 per cent for 1940-41.

P.-L.-M. Results.—The net profit for 1942 of the Compagnie des Chemins de fer Paris-Lyons-Méditerranée amounted to fr. 17,400,000, compared with fr. 15,200,000 for 1941; and the contributions of the Société Nationale des Chemins de fer Français again enabled a dividend of 14·8 per cent. to be paid on the company's share capital of fr. 400,000,000. The report states that the contribution of fr. 1,000,000 due from the Algerian Government for 1942 has not been received, nor is there any likelihood of this in present circumstances.

Permanent Way Institution.—By courtesy of Mr. Henry Watkins, Managing Director of Francis Morton & Co. Ltd., Hamilton Iron Works, Garston, Liverpool, members of the Manchester & Liverpool Section will be able to inspect the company's works on Saturday, July 17, commencing at 2.30 p.m. For many years, Francis Morton & Co. Ltd. has built and erected steel bridges for the L.M.S.R. and members will be able to see the fabrication of a girder bridge now in progress for that railway.

Guest, Keen & Nettlefolds Limited.—After providing for taxation, fees, and general expenses, allowing £94,187 (£95,054) for debenture charges and deducting £275,000 (£250,000) for depreciation, the net profit for the year ended March 31, 1943, amounted to £903,000 (£858,624) The directors have transferred £22,000 (£46,000) for war damage insurance, £50,000 (same) to war contingencies account including deferred repairs, and £150,000 (£100,000) to reserve, which has also been credited with £44,250 (£43,288) arising from debenture redemption. The final ordinary dividend of 6 per cent. again makes 10 per cent., less tax, for the year.

County of London Plan Exhibition.—An exhibition of large-scale maps and drawings illustrating the County of London Plan for redevelopment which has been prepared by Mr. J. H. Forshaw, Architect to the London County Council, in association with Professor Patrick Abercrombie, was opened on July 14. The exhibition will be open to the public on the latter date, and on July 15 and 16, from 2 p.m. to 8 p.m.; and from July 17 to August 14 (on Mondays, Tuesdays, Wednesdays, Thursdays, and Saturdays, from 10 a.m. to 8 p.m.; and on Fridays, from 10 a.m. to 9 p.m.). It

British and Irish Railway Stocks and Shares

Stocks	Highest 1942	Lowest 1942	Prices July 9, 1943	Prices Rise / Fall
G.W.R.				
Cons. Ord.	58	39	63	+ ½
5% Con. Pref. ...	115½	105½	113	—
5% Red. Pref. (1950)	109½	103½	108	—
5% Rt. Charge ...	133½	123½	125½	—
5% Cons. Guar. ...	130½	121½	124½	—
4½% Deb.	117	105	108½	—
4½% Deb.	118	108	110½	— 1
4½% Deb.	125	113	118½	—
5% Deb.	137	127	129	—
2½ Deb.	77	70	75½	—
L.M.S.R.				
Ord.	28½	16½	33½	—
4% Pref. (1923) ...	63½	50½	62½	—
4% Pref.	76½	67½	77	+ 1
5% Red. Pref. (1955)	103½	94½	103½	—
4% Guar.	104½	97½	100½	+ ½
4% Deb.	108½	101½	104	—
5% Red. Deb. (1952)	111	107½	109½	—
L.N.E.R.				
5% Pref. Ord. ...	9½	2½	10½	—
Def. Ord.	5	1½	4½	—
4% First. Pref. ...	62	49½	62½	—
4% Second Pref. ...	32½	18½	35½	—
5% Red. Pref. (1955)	95½	79	97½	—
4% First Guar. ...	98	88	98	+ ½
4% Second Guar. ...	90	78	90½	+ 1
3% Deb.	85	76	80	+ ½
4% Deb.	106½	100½	103	+ ½
5% Red. Deb. (1947)	106	103	104	—
4½% Sinking Fund Red. Deb.	106	102½	105½	—
SOUTHERN				
Pref. Ord.	77	61½	76½	+ ½
Def. Ord.	23½	14½	25½	—
5% Pref.	112½	104	111½	—
5% Red. Pref. (1964)	110½	105½	112½	—
5% Guar. Pref. ...	131	121½	124½	—
5% Red. Guar. Pref. (1957)	115½	109½	114½	—
4% Deb.	116	104½	108	+ 1
5% Deb.	134	125½	129½	—
4% Red. Deb. (1962-67)	110½	106	107½	—
4% Red. Deb. (1970-80)	111	106½	107½	—
FORTH BRIDGE				
4% Deb.	109 7/8	108	106§	—
4% Guar.	105½	100	104½§	—
L.P.T.B.				
4½% "A"	122½	111	116½	—
5% "A"	131½	122	126½	—
3% Guar. (1967-72)	95½	97½	99	—
5% "B"	121	111½	115½	—
"C"	56½	38	62½	+ 1
MERSEY				
Ord.	27½	20½	31	—
3% Perp. Pref. ...	61½	56½	61	—
4% Perp. Deb. ...	102½	99½	104	—
3% Perp. Deb. ...	80½	76	79	—
IRELAND				
BELFAST & C.D.				
Ord.	9	4	9	—
G. NORTHERN				
Ord.	29½	12½	18½	+ ½
G. SOUTHERN				
Ord.	25	10	10	—
Pref.	29	12½	14½	+ ½
Guar.	53	35½	31½	+ 3
Deb.	71½	55½	56	+ 3

§ ex-dividend

OFFICIAL NOTICES

Overseas Employment

SUDAN GOVERNMENT RAILWAYS require the services of a SIGNAL AND TABLET INSPECTOR, preferably unmarried. Candidates should have had workshop and outdoor experience in the maintenance and renewal of signalling installations, Tablet, Telephone and Telegraph instruments. They should also have some knowledge of train control apparatus and be able to prepare signal diagrams, interlocking table and working charts. Candidate, on appointment, will be required to take charge of a district with Sudanese staff under him. He must possess personality and tact and aptitude for control of staff.

Starting rate of pay £E.324–360 per annum (£E.1 = £1 0s. 6d.), according to age and qualifications, biennial increases in accordance with Government scales, viz., £E.324–360–396–432–480–540–600. Successful candidate will be appointed on probationary contract for five years and subscribe to the Provident Fund after which, if not accepted to pension, he will be paid a bonus equivalent to 20 per cent. of the pay drawn between the date of his retirement and the completion of two years service. Free passage on appointment. Strict medical examination. At present there is no income tax in the Sudan.

Written applications (no interviews) giving full details of age, registration numbers, qualifications, experience and name and address of present employers should be sent to The Secretary, Overseas Manpower Committee (Ref. 957), Ministry of Labour and National Service, Sardinia Street, Kingsway, London, W.C.2

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will not be open on Sundays. Reference to the County of London plan is made in an editorial article on page 55.

Signal & Tablet Inspector Required.—Applications are invited by the Ministry of Labour & National Service for a position as Signal & Tablet Inspector with the Sudan Railways. Details are given in our Official Notices above.

Argentine North Eastern Railway Co. Ltd.—The directors announce payment on August 6 of interest on the 5 per cent. "B" debentures and debenture stock in respect of the six months to June 30, 1932, together with 5 per cent. interest on the arrears, making a total of £3 17s. 9d. per cent., less tax. This is the first payment on these securities since that made in January, 1932, in respect of the six months to December 31, 1931.

Inspection of a Southern Railway Depot.—Recently Sir Ramaswami Mudaliar, a member of the Imperial War Cabinet; Mr. S. Lall, Deputy High Commissioner for India, and Brigadier C. A. F. Drummond, O.B.E., Chief Supply Officer, India Office, visited a London area goods depot of the Southern Railway to inspect various types of cargo containers, especially those used for the transport of perishable goods. Particular attention was given to the structural details. After the inspection, loading and unloading by gantry crane was demonstrated. The efficiency of the Southern Railway and the organisation which it has developed in handling this type of cargo greatly impressed itself on the experts. The demonstration was arranged by Mr. R. M. T. Richards, Traffic Manager, assisted by Mr. W. J. England, Superintendent of Operation, and Mr. R. H. Hacker, Continental Superintendent. Others present were Dr. A. J. M. Smith, Chief of Inter-Allied Requirements Bureau, Mr. K. C. Mahindra, Mr. A. J. W. Graham, Mr. C. G. Hatherly, Mr. A. Thomson, Mr. C. B. Morrison, and Mr. A. A. Naar.

L.M.S.R. Extension of Time Application.—The London Midland & Scottish Railway Company is applying to the Minister of War Transport for an Order under the Special Enactments (Extension of Time) Act, 1940, extending by three years the time now limited by:—(1) Section 27 of the L.M.S.R. Act, 1938, for the completion of Work No. 3 at Fleetwood authorised by Section 5 of the L.M.S.R. Act, 1931; (2) the L.M.S.R. (Extension of Time) Order, 1941 (S.R. & O. 1941, No. 197) for the acquisition of lands—(*a*) in Birmingham, Elstree, and Hendon authorised to be acquired by Section 32 of the Act of 1931; (*b*) in the rural districts of Billericay and Orsett, Essex, authorised to be acquired by Section 13 of the L.M.S.R. Act, 1934; (*c*) in Birmingham, Coventry, Wallasey, Branston, and in the rural district of Meriden (Warwickshire), authorised to be acquired by Section 8 of the L.M.S.R. Act, 1937; (3) the L.M.S.R. (Extension of Time) (No. 2) Order, 1941 (S.R. & O., 1941, No. 311) for the completion of Railway (No. 3) authorised by the Caledonian Railway (General Powers) Act, 1899.

Midland Bank Limited.—The directors announce an interim dividend for the half-year ended June 30 last at the rate of 8 per cent. actual, less income tax, payable on July 15 next. The same rate of dividend was declared a year ago.

Underground Train Crash in Turkey.—Reuters states that two persons were killed, and twenty-two injured, when the breaking of a cable recently resulted in an underground train running backwards and crashing through buffers into the streets of Galata (a suburb of Istanbul).

Central Brazil Railway Coal Consumption.—The General Manager of the Central Brazil Railway has given instructions that total monthly consumption of imported coal must not exceed 9,000 tons. In 1938 the consumption of imported coal by the railway was 570,885 tons.

S.R. Salvage Films.—During the tour on the Southern Railway system of the travelling salvage exhibition opportunity is being taken to make local school-children salvage-minded by means of films shown in the company's cinema coach, which is on tour primarily for the instruction of the railway staff. Admission to a special film show for children is free, except that each child is expected to bring a piece of salvage—either a bundle of old papers, a piece of old metal or rubber, or some other item—which is deposited in bins by the cinema coach. These shows already have been given at eight stations in Kent, at which some 1,300 children have been admitted. At Maidstone (West), for example, some 300 children brought with them 30 cwt. of paper and about the same quantity of scrap metal.

Contracts and Tenders

Below is given a list of orders placed recently by the Egyptian State Railways:—

Crompton Parkinson Limited: Cable.

Metropolitan-Vickers Electrical Export Co. Ltd.: Machine parts, plant.

Ericsson Telephones Limited: Key levers.

Siemens Bros. & Co. Ltd.: Condensers, etc.

General Electric Co. Ltd.: Conduits, junction boxes, condensers, etc.

Standard Telephones & Cables Limited: Voltage regulator, earpieces, etc.

T.N. Stores: Superheater flame tubes, tyres.

Sentinel Waggon Works (1936) Limited: Roller bearings, spares for steam railcars.

Guest Keen & Nettlefolds Limited: Split cotter pins, bolts, nuts.

Grove & Co. Ltd.: Washers, etc.

James Mills: Split taper pins.

Bullers Limited: Insulators.

Grahamston Iron Co. Ltd.: C.I. bends.

William Hunt & Sons (The Brades) Limited: Tools.

British Insulated Cables Limited: Wire.

Tools & Instruments (Highgate) Limited: Hand vices.

Buck & Hickman Limited: Special steel for tools.

Stewarts and Lloyds Limited: Tyres, pipes.

A group of school-children about to enter the Southern Railway cinema coach to see the showing of a salvage film. A description appears above of the scheme whereby this coach, which is intended primarily for instruction of railway staff, is used also to help make salvage-minded school-children in the localities which it visits

Railway Stock Market

Although Stock Exchange markets have shown a very firm undertone, and very little selling was in evidence, an attitude of caution pending the development of the latest phase of the war was indicated by absence of any widespread improvement in demand. The upward trend in British Funds in evidence last week has not been maintained at the time of writing, but the tendency has been for main attention to centre on high-grade investment securities, and moderate gains were recorded among home railway debentures. The latter show yields which compare favourably with those on securities of equal status in other sections of the Stock Exchange. Moreover, guaranteed stocks have been inclined to improve, including L.N.E.R. second guaranteed, and in other directions, a number of gains were recorded among some of the higher-yielding preference issues, including L.M.S.R. senior and 1923 preferences. Yield considerations also tended to draw further attention to Southern preferred, which was again slightly higher on balance. In most cases, movements in junior stocks were again fractional and last week's gains were not fully held. There seems little doubt, however, that discussion of expectations as to the forthcoming interim dividends has tended to draw wider attention to the generous yields, although it is recognised that the prevailing view is that decisions as to interim dividends are likely to be the same as a year ago. The volume of business in home railway securities has not undergone any marked increase in recent weeks. Nevertheless, the assumption in many quarters is that, when markets show sustained activity, there should apparently be scope for favourable appreciation in home railway securities. On the other hand, it has to be borne in mind that the tendency is for market values to be influenced as much by views as to the post-war position of individual trades and industries as by the question of current dividend yields. In this connection, however, it is possible that as time proceeds it will become more generally recognised that there is probably no other leading industry whose immediate post-war position as to dividends is as clearly defined as that of the railways, bearing in mind that there seem reasonable possibilities of the existing rental agreement remaining in force until there is an agreement after the war on the question of transport organisation.

Compared with a week ago, Great Western ordinary was fractionally lower at 62⅝, but the 5 per cent. preference was half-a-point better at 113½, and the 4 per cent. debentures 109, compared with 108½. L.M.S.R. ordinary showed little change on balance at 33½, but remained fairly active on the possibility that it may be decided to make an interim payment on this occasion. L.M.S.R. senior preference was in better demand and improved from 76¾ to 77¼, and compared with a week ago, the 1923 preference gained half-a-point to 62¾. L.M.S.R. guaranteed was at the higher level of 101. L.N.E.R. preferred and deferred were inclined to show small fluctuations, and on balance, the second preference was little changed at 35⅝; the first preference recorded a small gain from 62¼ to 62½. Moreover, L.N.E.R. second guaranteed improved from 89½ to 91; there has been wider recognition that the yield is on the generous side when compared with the investment status of this stock. L.N.E.R. first guaranteed was also better at 98, compared with 97½, while the 3 per cent. debentures improved to 80½. Among Southern stocks, the deferred at 25½ was slightly lower on balance; but the preferred further improved from 76 to 76½, the 4 per cent, debentures to 108, and the 5 per cent. preference was 111½. London Transport senior stocks tended to improve; the "C" was better at 62½, compared with 62¼ a week ago.

Argentine railway securities again eased in the absence of improvement in demand. Argentine North Eastern stocks were firmly held under the influence of the further payment on the "B" debentures. San Paulo ordinary and stocks of other Brazilian railways were inclined to reflect the reactionary trend in evidence in Brazilian bonds. French railway sterling bonds were better under the lead of Nord. Canadian Pacifics were unresponsive to the latest traffic figures.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ending	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1941/2	No. of Weeks	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Totals 1941/2	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1942	Prices: Lowest 1942	Prices: July 9, 1943	Yield % (See Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	4.7.43	27,050	+ 8,720	26	725,190	569,210	+ 155,980	Ord. Stk.	14	7⅜	14	Nil
	Argentine North Eastern	753	3.7.43	13,260	+ 546	1	*5,016	*6,390	— 1,374	"	6⅛	3	7¼	Nil
	Bolivar	174	June, 1943	4,868	+ 500	26	32,414	27,431	+ 4,983	6 p.c. Deb.	19¾	10	20¼	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	20¼	9	22	Nil
	Buenos Ayres & Pacific	2,807	3.7.43	72,900	— 18,660	1	*23,340	*60,240	— 36,900	Ord. Stk.	7⅜	4	6½	Nil
	Buenos Ayres Great Southern	5,080	3.7.43	134,760	+ 10,020	1	*66,420	*70,860	— 4,440	Ord. Stk.	12½	7⅛	11⅛	Nil
	Buenos Ayres Western	1,930	3.7.43	44,100	— 18,600	1	*18,300	*29,460	— 11,160	"	12⅜	6	11½	Nil
	Central Argentine	3,700	3.7.43	100,989	— 24,045	1	*41,220	*57,708	— 16,488	"	9½	4½	9	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	3⅜	2⅛	4	Nil
	Cent. Uruguay of M. Video	972	3.7.43	34,163	+ 13,256	1	*12,208	*10,466	+ 1,742	Ord. Stk.	8	4	6½	Nil
	Costa Rica	262	May, 1943	22,861	+ 7,210	41	173,827	228,220	— 54,393	Stk.	16⅛	11	14	Nil
	Dorada	70	19.6.43	21,939	+ 6,057	20	98,259	63,546	+ 34,713	1 Mt. Db.	90⅜	89	94½	6 10
	Entre Rios	806	3.7.43	19,722	+ 2,268	1	*7,488	*9,204	— 1,716	Ord. Stk.	33	4⅜	7	Nil
	Great Western of Brazil	1,030	3.7.43	17,700	+ 8,600	26	413,400	265,800	+ 147,600	Ord. Sh.	9/-	9/-	55/-	Nil
	International of Cl. Amer.	794	May. 1943	$646,832	+ $35,592	20	$3,312,644	$3,159,152	+ $153,492	—	—	—	—	—
	Interoceanic of Mexico	—	—	—	—	—	—	—	—	1st Pref.	1⅜	5/3	2	Nil
	La Guaira & Caracas	22¾	June, 1943	8,195	+ 2,335	26	53,590	37,990	+ 15,600	5 p.c. Deb.	11⅛	5	83½	Nil
	Leopoldina	1,918	3.7.43	33,195	+ 88	26	865,560	786,819	+ 78,741	Ord. Stk.	6¾	3⅛	6	Nil
	Mexican	483	30.6.43	ps. 679,100	+ ps.116,000	26	ps. 9,763,100	ps. 8,913,200	+ ps. 849,900	Ord. Stk.	1	⅛	1½	Nil
	Midland Uruguay	319	May, 1943	15,947	+ 993	48	168,895	152,464	+ 16,431	—	—	—	—	—
	Nitrate	382	30.6.43	4,453	— 8,551	26	71,093	84,628	— 13,535	Ord. Sh.	77/-	3⅛	79/-	Nil
	Paraguay Central	274	2.7.43	$4,228,000	— $772,000	1	R$1,561,000	R $2,813,000	— $1,252,000	Pr. Li. Stk.	53	40	53½	11 7/8
	Peruvian Corporation	1,059	June, 1943	104,734	+ 22,552	52	1,045,065	915,630	+ 129,435	Pref.	19⅞	5⅛	15	Nil
	Salvador	100	April, 1943	c 122,000	+ c 51,000	42	c 1,034,000	c 853,172	+ c 180,828	—	—	—	—	—
	San Paulo	153⅛	4.7.43	48,446	+ 12,201	27	1,040,708	955,346	+ 75,362	Ord. Stk.	59	41	58½	3 3/8
	Taltal	160	June, 1943	2,605	— 3,195	29	48,811	55,510	— 6,699	Ord. Sh.	41/-	23/-	32/6	Nil
	United of Havana	1,301	3.7.43	59,771	+ 16,650	1	*22,365	*21,599	+ 766	Ord. Stk.	8½	2½	6	Nil
	Uruguay Northern	73	May, 1943	1,666	+ 483	48	15,772	13,266	+ 2,506	—	—	—	—	—
Canada	Canadian Pacific	17,034	7.7.43	1,149,000	+ 183,600	27	28,395,200	25,172,000	+ 3,223,200	Ord. Stk.	16¾	9 3/16	16¼	Nil
India†	Barsi Light	202	30.6.43	17,835	+ 4,928	13	63,075	39,600	+ 23,475	—	—	—	—	—
	Bengal & North Western	2,090	Nov., 1942	264,975	— 33,087	8	449,400	561,082	— 111,682	—	—	—	—	—
	Bengal-Nagpur	3,267	Feb., 1943	932,775	+ 84,975	46	10,031,400	9,111,000	+ 920,400	Ord. Stk.	102½	88	102½	3 9/10
	Madras & Southern Mahratta	2,939	30.4.43	286,500	+ 48,748	4	840,375	681,69 8	+ 158,677	"	105½	87	107½	6 11/16
	Rohilkund & Kumaon	571	Nov., 1942	555,750	+ 5,072	8	115,950	99,909	+ 16,041	"	—	—	—	—
	South Indian	2,349	20.4.43	191,693	+ 10,877	3	380,790	359,828	+ 20,962	"	103½	88 7/8	102½	4⅛
Various	Egyptian Delta	—	31.5.43	14,669	+ 3,669	8	84,476	64,698	+ 19,778	Prf. Sh.	5⅛	1⅛	4	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	44	35	37½	9 11/16
	Midland of W. Australia	277	May, 1943	34,519	+ 7,674	48	355,515	229,955	+ 125,560	Inc. Deb.	95	90	98	6 1/8
	Nigerian	1,900	31.3.43	51,142	+ 29,172	51	3,606,468	3,266,869	+ 339,599	—	—	—	—	—
	South Africa	13,291	8.5.43	885,689	+ 140,973	5	4,608,221	4,180,541	+ 427,680	—	—	—	—	—
	Victoria	4,774	Jan., 1943	1,480,058	+ 169,521	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ⅛

† Receipts are calculated @ 1s. 6d. to the rupee

* Aggregate receipts for 3 days to July 3, 1943, and for 4 days to July 4, 1942

Argentine traffics are given in sterling calculated @ 16⅝ pesos to the £

§ ex dividend

R Aggregate receipts for 2 days to July 2, 1943, and for 4 days to July 4, 1942